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# USSR Report

## NATIONAL ECONOMY

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# NATIONAL ECONOMY

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INDUSTRIAL DEVELOPMENT, PERFORMANCE

# PLANNED RETOOLING, MODERNIZATION OF INDUSTRY ASSESSED

## CSA Survey Results Reported

Moscow FINANSY SSSR in Russian No 6, Jun 86 30-32

[Article by I. N. Perepechin, department chief of the USSR Central Statistical Administration, candidate of economics: "The Effectiveness of the Technical Reequipment of Industrial Enterprises"]

[Text] At the 27th CPSU Congress it was emphasized that the cardinal acceleration of scientific-technical progress presupposes the reequipment of all sectors of the national economy on the basis of the modern achievements of science and technology. First of all, this pertains to industrial production and its nucleus--machine building.

For measures for technical reequipment, a high ratio of expenditures for equipment in the total volume of capital investments for these purposes is characteristic. In so doing, maximum use is made of existing production premises, buildings and installations. The expenditures which in their time were realized during their creation are utilized, as it were, repeatedly, much more fully than this happens in the case of the expansion of enterprises and even their reconstruction.

Such a peculiarity of technical reequipment has important economic consequences. If in other types of construction--new, expansion, reconstruction--an increase in labor productivity and a release of a number of workers is attained in many cases at the price of increasing the cost of the proportionate capital investments, technical reequipment makes it possible, as a rule, to economize simultaneously both living labor and capital expenditures. This is especially important in the conditions of the growing shortage of labor resources and the tautness of the capital investment balance.

During the period from 1976 to 1985, the expenditures for technical reequipment increased by a factor of 5.1, while the total volume of state capital investments grew only by a factor of 1.4. Correspondingly, the share of expenditures for technical reequipment increased during this time from 7.4 per cent to 27.2 percent.

The Basic Directions of the Economic and Social Development of the USSR for the Years 1986-1990 and for the Period to the Year 2000 envisage a sharp increase

in the volume of expenditures for technical reequipment (their proportion together with the reconstruction of enterprises should come to no less than 50 percent).

At the same time, measures for technical reequipment bear an extremely individual character and differ significantly from one another in terms of content, the tasks set for them, and the concrete conditions in which they are realized. Technical reequipment may be regarded as a sort of contrast to standard and mass construction. It is here that the reason of some of the organizational and technical difficulties is concealed which sometimes arise in the conduct of these measures, as well as differences in economic results.

In connection with this, it seems extremely topical to undertake a systematic analysis of the efficiency of enterprises, bringing to light not only the general results, but also the dependence of these results on the concrete content and the tasks of the measures carried out. This would make it possible to establish the most efficient directions of technical reequipment and to reveal reserves for the further development of the effectiveness of this type of reproduction of fixed capital. A great role belongs here to the organs of state statistics and to the financing banks.

The USSR Central Statistical Administration plans to carry out regular surveys of the economic and social results of technical reequipment in regard to the whole range of industrial enterprises carrying out such measures if the actual cost of the latter exceeded 1 million rubles.

Preliminary surveys of technical reequipment in enterprises were carried out in 1984 for 11 machine building ministries, and at the beginning of 1985--for five ministries which in 1984 had implemented the economic experiment.

The data obtained as a result of the first of these surveys have made it possible to draw conclusions about the high effectiveness of capital investments in technical reequipment. The average physical life of the fixed capital introduced as the result of reequipment came to 2.3 years in the surveyed enterprises. During this period, the profit received from the use of the fixed capital turned out to be equal to 52 percent of the corresponding capital investments. Given the maintenance, in the future, of profitability at the level that has developed, the total profit will be equal to the magnitude of capital investments after 4.4 years. According to the norm, the payback time amounts to 7-8 years on the average. Thus, capital investments in technical reequipment possess an effectiveness which is approximately one and a half to two times higher than the norm (calculated as a whole for all types of reproduction, i. e., without differentiation: For new construction, expansion, reconstruction, and technical reequipment).

The actual return of expenditures for technical reequipment proved to be even somewhat higher than in the planning justification. During the same period, with the observance of the level of efficiency provided for in the plans (as well as of the plan deadlines for the realization of the expenditures and the putting into operation of the fixed capital), only 40 percent of the capital investments had to be recovered. In this case, the packback time would come to 6 years.

The duration of the implementation of one measure for technical reequipment came to 1.6 years on the average in the enterprises surveyed. Consequently, the duration of the investment in the enterprises surveyed is equal to 6 years. For the creation of fixed production capital for 1 million rubles, 0.3 years, or 3.6 months, were required on the average. As a whole, 0.62 years are necessary for this in production construction.

Per ruble of additional annual production in the presence of the technical reequipment of machine building enterprises, 78 kopecks in capital investments were required on the average, which is approximately twice as low as for all production construction.

After the completion of technical reequipment by these enterprises, the output increased on the average by 18 percent. A significant number of workers was released, workers being employed in basic manual labor. In connection with the simultaneous growth of the production volume, the relative release exceeded the absolute release.

The economic and social results attained in the enterprises surveyed are very closely related to the structure of the realized capital investments. For the aggregate of the enterprises surveyed as a whole, the proportion of construction and installation work came to 6.1 percent. At the same time, in many machine building enterprises it proved to be significantly higher than the average magnitude, reaching up to 50 percent in some cases. Correspondingly there was also a decrease in the economic efficiency of capital investments in technical reequipment.

Approximately one-third of all measures consisted in the replacement of equipment (without the simultaneous realization of other work), about one-fourth--in the introduction of new technology (including the installation of the equipment necessary in such cases) and something less than one-fourth--in the mechanization and automation of production.

The analysis of the effectiveness of technical reequipment in machine building enterprises made it possible to expose a number of shortcomings as well. By far not in all cases is an integrated approach utilized in the formation of plans for technical reequipment. The majority of measures were implemented without completed planning estimates having technical and economical vindication of research and development tasks. However, even when such justification existed, one encountered plans according to which efficiency at a level below the standard level was envisaged. In the majority of cases, an increase in the profitability of fixed capital and the capital-output ratio was not envisaged. There was an appreciable improvement--by comparison with the initial level, prior to technical reequipment--only in labor productivity and in the release of the number of workers connected with it. Meanwhile, the dominating position of the active part of fixed production capital in technical reequipment makes it entirely possible to achieve simultaneously with the growth of labor productivity also an increase in the capital-output ratio.

Among the shortcomings is also the protracted failure to put the planned production and profit volumes into operation. This is very typical not only for technical reequipment, but also for all other types of reproduction.

The survey of the enterprises of the five ministries, which in 1984 carried out the economic experiment, confirmed the high economic efficiency of technical reequipment. The recovery period for capital expenditures turned out to be two to three times shorter than in the case of new construction and the expansion of enterprises. The proportionate capital investments were also significantly lower. In all of the enterprises surveyed, there was a decrease in production cost per unit of production after the realization of technical reequipment and an increase in labor productivity. The relative release of the number of workers reached almost 20,000 persons. In so doing, mainly workers were released. There was an increase in the proportion of workers engaged in mechanized labor.

At the same time the survey showed that in some cases a reduction took place in the share of the production development fund directed toward technical reequipment. Moreover, there was a reduction in the proportion of equipment in the composition of these funds in some enterprises. Not all enterprises were fully furnished with equipment, contract agreements, and planning estimates.

In the structure of expenditures from the production development fund for technical reequipment, there was a substantial increase in the share going for the introduction of scientific-technical measures, which is indicative of the qualitative improvement of the content of technical reequipment.

In summing up, it can be said that the surveys that have been conducted have made it possible to determine the criteria of the efficiency of technical reequipment, to characterize (at least in a preliminary way) the level of the reduction of recovery periods, the reduction of proportionate capital investments, the increase of labor productivity, and the relative and absolute release of the number of working people, especially workers. Proposals were made and approved in regard to the methodology of such surveys and the range of the basic indicators that characterize the economic efficiency of technical reequipment.

Simultaneously some of the shortcomings noted above that are connected with the use of the production development fund for the needs of technical reequipment were also brought to light.

At the same time, it seems necessary not to limit ourselves to the study of the efficiency of technical reequipment as a whole, but to bring to light the results of the concrete direction of this measure, for example: The replacement of obsolete and worn-out equipment, the introduction of new technology, the mechanization and automation of production processes, the improvement of the organization and structure of production, general plant economy, and other measures. The enterprises surveyed should be grouped in accordance with these indicators and the corresponding expenditure recovery periods, proportionate capital investments, periods of the realization of measures, and other indicators should be determined for each one of them.

Evidently, it would be expedient to stimulate the main use of the production development fund for the technical reequipment of industrial enterprises. Such a stimulus, for example, could be the reduction of the standard recovery period for capital investments from the development fund. Thus, if this period will

be 5-6 years, the means of the development fund cannot be used for expansion, new construction and reconstruction, which, undoubtedly, will signify a stimulation of technical reequipment.

In the future it will be possible to differentiate such a norm in terms of individual directions of technical reequipment, thereby stimulating the use of the most advantageous and efficient directions.

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Future Developments Discussed

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 8, Aug 86 pp 73-82

[Article by V. Loginov, doctor of economics, professor, I. Kurnysheva, candidate of economics, and L. Stepanova, candidate of economics: "Reconstruction and Technical Reequipment of Production in the 12th Five-Year Plan"]

[Text] Efficiency of reconstruction and technical reequipment • Renewal of the fixed capital of the national economy • Effectiveness of technical reequipment in subsidiary and auxiliary sectors of production.

The 12th Five-Year Plan is an important stage in the socio-economic development of our country. At the 27th CPSU Congress it was noted that "the essence of the times lies in the transfer of the center of attention from quantitative indicators to quality and efficiency, . . . from the expansion of producer goods --to their renewal. . . ." (Footnote 1) ("Materialy XXVII sezda Kommunisticheskoy partii Sovetskogo Soyuza" [Materials of the 27th Congress of the Communist Party of the Soviet Union], Moscow, Politizdat, 1986, p 25).

If one regards our development to the year 2000 as a transition of the economy to a mainly intensive type of expanded reproduction, the 12th Five-Year Plan will become a period of qualitative changes (intensive factors) in productive forces, a distinctive springboard for a broad attack along the entire economic front. It can be called the five-year plan of technical reconstruction of the entire national economy, in which the renewal of the existing production apparatus will occupy the central place.

The policy aimed at the technical reequipment of the production apparatus reflects not a temporary change in the proportions in capital investments, but the most important direction of the long-term investment policy, which must take into account the modern trends of technical progress for the justified distribution of resources among different forms of the reproduction of fixed production capital.

The investment process in general coincides with the course of the entire public reproduction, and its development reflects the efficiency of production as a whole. At the same time, as an organic part of the reproduction process, it expresses the continuously resuming complex link between the direction of capital investments into the national economy and the efficiency of their utilization from the point of view of the formation of new, additional resources for the further development of the economy.

The dialectics of the development of the productive forces require a transition to a new qualitative level of the development of intensive expanded reproduction. This process occupies a long historical period, it requires large investments and the breaking up of traditional structures. Karl Marx, in examining the interrelationship between the productive forces and their historically conditioned social form, showed that the intensive type of expanded reproduction is linked, above all, with the development and perfection of its material base--the means of labor. (Footnote 2) (K. Marks, F. Engels, "Soch." [Works], 2nd ed, Vol 46, Pt 1, p 431).

In the program for the acceleration of the socio-economic development of the country elaborated by the 27th CPSU Congress, a fundamental change to the intensification of production on the basis of the broad introduction of the achievements of scientific-technical progress was envisaged. The growing significance of scientific-technical progress as a factor of intensive economic growth and the increase of its role in socialist construction require also adequate changes in investment policies. The report of M. S. Gorbachev at the June (1986) Plenum of the CPSU Central Committee called special attention to this.

In the presence of the same content and direction of investments earmarked for production, its goals change with respect to the concrete stages of the creation of the material-technical base of socialism and are determined by the degree of interdependence in the development of production and scientific-technical progress, as well as by the possibilities of the latter.

The introduction of the achievements of scientific-technical progress makes it possible not only to increase the technical level of the means of production being applied, but also to create the prerequisites for the subsequent reduction of the share of investments earmarked for production in the total volume. However, deviations are possible in various stages of the scientific-technical revolution. As a rule, this takes place in periods of the replacement of generations of technology and technological explosions, when investments are sharply growing, in order for them to be able to be recovered with the use of fundamentally new technological means in the course of time.

At the present time, scientific-technical and investment policy are confronted with the tasks of the mass change of equipment on a new technological basis, but the attained level of equipment and technology and the accumulated scientific potential make it possible to realize such a renewal. For this reason, in the 12th Five-Year Plan, by comparison with the 11th Five-Year Plan, we are forced to increase somewhat the volumes of capital investments (by 45 billion rubles) given the important change of their distribution in favor of technical reequipment.

The optimal correlation in the distribution of investments between new construction and the improvement of already existing production in modern conditions is one of the basic proportions of the reproduction process as a whole.

For a long period of time, the Soviet economy developed mainly extensively. The creation and development of new sectors and regions and the expansion of the volumes of existing production were secured basically through new capital

construction. The introduction of new production capabilities and workplaces was the main factor of economic growth. Moreover, increasingly greater raw material and fuel and energy resources were brought into production every year. Thus, the smelting of steel during the period 1970 to 1984 increased by 38.5 million tons, i. e., by more than one-third, the extraction of conventional fuel--by 564.4 million tons (w-t-c), the production of electricity--by 751 billion kilowatt-hours (by more than double). As long as resources, especially raw material resources, were extracted with smaller expenditures, the extensive expansion of the production apparatus was accompanied by nice indicators of efficiency of the economy: the national income growth rates exceeded capital investments, the capital-output ratio grew, the labor productivity growth rates amounted to 5-6 percent, etc. But in time the involvement of new resources in production began to be accompanied by an increase in expenditures as a consequence of the deterioration of the quality of natural raw material, the shift of its main extraction to the north and east, as well as by a change in the demographic situation. During this period, many sectors began to experience a chronic shortage of manpower and the increase of the production apparatus was accompanied by its underloading. As a result, the comparative dynamics of the assets and the national income changed.

In 1984 the value of the fixed production capital of the national economy reached almost 2.4 trillion rubles. During 1940-1984 it increased by a factor of 8.4, which is significantly higher than the growth rates of the country's national income, which during this time increased only by a factor of 4.7. In five-year plan periods, the dynamics of the indicators developed as follows:

Table 1. Correlation of Growth Rates of National Income and Capital Investments (in Percent)

| Item | 1946-1950 | 1951-1955 | 1956-1960 | 1961-1965 |
|---|---|---|---|---|
| National income produced | 149 | 139 | 124 | 115.1 |
| Fixed production capital of the national economy | 144 | 152 | 141 | 126.3 |
| Correlation of growth rates of national income and fixed capital | 1.035 | 0.914 | 0.879 | 0.911 |

As is evident from the data cited, only in the 11th Five-Year Plan was a change in the correlation of the growth rates of the national income and capital investments in the national economy in favor of the first indicator noted. This correlation is very important for the characterization of the type of reproduction since it reflects the comparative results of expenditures and results of production as a whole. This happened as the result of the influence of a number of factors, among which should be mentioned the growth of labor productivity as the result of the improvement of discipline and organization in production, the gradual increase of the share of reconstruction and technical reequipment of existing enterprises, the relative slowing down of the rates of investments in the raw materials sectors, etc. In the 12th Five-Year Plan and especially in the future, progressive structural changes in industry will intensify, which will be more conducive to the favorable correlation of the growth rates of the national income and capital investments.

As far as the 9th and 10th five-year plans are concerned, during this period the growth of national income lagged behind capital investments. Simultaneously there was a reduction in the capital-output ratio and a slowdown in the labor productivity growth rates. The output-capital ratio of public production was influenced by a number of factors, including the falling effectiveness of capital investments in new construction and the expansion of existing enterprises given the high degree of saturation of the national economy with assets demanding constant replacement. Although the proportion of capital investments in technical reequipment and reconstruction of existing enterprises is constantly increasing, for the time being it is significantly lower in the USSR than in other countries.

The form of investment in which capital investments are directed mainly toward the creation of new assets is effective in the beginning stages of economic development. However, beginning with the 1970's, negative phenomena began to be manifested in it. In a highly-developed economy with a multi-sector structure, the possibilities for resource maneuvering are reduced. The extractive industries, whose relative share in the country is great, require greater investments for the maintenance of capacities that are being withdrawn. Capital investments for irrigation, the transfer of the flows of rivers to dry regions, and environmental protection measures are increasing.

The growth of the volumes of capital construction creates also conditions for increasing its duration and incompleted projects. Construction is transformed into an enormous sector of the economy with a complex system of management. For these reasons, investments in capital construction do not produce the previous output from the point of view of the acceleration of the rates of economic development. Meanwhile, during the past few years, one observes the aspiration of the industries (in conditions of not having to pay for capital investments) toward the expansion of the volume of production through new capital construction in order to have a reserve of production capacities. It must be noted that the economic mechanism of an economy of the extensive type, which is aimed at the achievement of quantitative (incremental to the base level) indicators, was not conducive to the concentration, in construction and in industry, of capital investments for technical reequipment and reconstruction of existing enterprises. It was much simpler to obtain inclusion in the ""title" [list] of new construction projects than to engage in the reconstruction of existing production. For this reason, the existing enterprises regularly received less in the way of funds from the central capital investment fund for the replacement of equipment.

Moreover, even the development fund of the enterprises was almost not used for these purposes. Even in the industries which in 1984 went over to the new conditions of management the development fund (now it has a goal-oriented designation--technical reequipment) is used basically for other needs. Many enterprises did not have long-term integrated plans for technical reequipment, including the step-by-step financing of large measures and programs. In enterprises where such plans were available, developed by the industry scientific research institutes and design offices, the financing was effected from centralized sources.

Matters stand analogously with the use of the amortization fund. Funds transferred by enterprises for renovation to the Bank for Financing Capital

Investments were used in centralized manner by the ministry basically for the financing of new capital construction. Allocations for capital repair were sent to their destination, but frequently they did not suffice, since the equipment had aged and increasingly more funds were required for its renovation. This is why the coefficients of the renewal of the fixed capital constantly decreased. In 1970, 1.8 percent of the assets in relation to the total mass were retired in the industry of the USSR because of dilapidation and wear and tear, in 1973--1.7, in 1983--1.3 percent.

In connection with the transfer of the economy to a primarily intensive path of development, our country is gradually making the transition to a capital-intensive type of reproduction, in which the production volumes grow more rapidly than the introduction of fixed production capital. A lead in the growth of national income over the growth rates of the assets has not been attained up to now, but the tendency of a slowdown in the growth rates of fixed capital in the presence of a constantly growing volume of production became apparent already in the 10th Five-Year Plan. Thus, by comparison with the 9th Five-Year Plan, in it the average annual introduction of fixed production capital in the national economy decreased from 6.7 to 5.8 percent, and for the 4 years of the 11th Five-Year Plan came to 5.7 percent.

The reduction of the introduction of fixed production capital in the national economy and its concentration in the main on newly built enterprises leads to the aging of its entire mass. In some sectors of industry, the share of the machines and equipment being used for more than 30 years constitutes a significant part of the total number. A large part of the production personnel is employed in these enterprises. The powerful production potential available at the present time is the result of the accumulation of capital during many years. Along with new, progressive fixed production capital, old, worn-out, and technically outdated capital is operating in the enterprises in large number. The operation of worn-out and obsolete equipment lowers the efficiency of the use of the production potential and also lowers the possibilities of expanded reproduction. Apart from the above-noted reasons, the efficiency of operation of the existing production cannot be attained because of the incompleteness and the non-complexity of mechanization and automation. In such industries as the chemical and petrochemical industries, the non-complexity of automation leads to the withdrawal of a large part of the expenditure for its realization. The aging of the fixed production capital has a negative effect on the quality of the production being manufactured and the dynamics of labor productivity in the national economy and leads to an increase of the expenditures for capital repair.

The sense of concentrating capital investments that are directed toward technical reequipment and reconstruction of existing production lies not only in the more rapid renewal of the capital, but is also directly related to the regularities of the process of reproduction.

First of all, this pertains to the replacement of worn-out means of labor, which encompass mainly their active part--machines and equipment--and which combine in themselves two processes: compensation and their accumulation. The process of the replacement of worn-out means of labor as such is limited by the compensation of the level of capability of the means of labor being removed from production. Any growth of the capacity and productivity of the new means of labor is

the result of additional expenditures of living labor in their creation, i. e., none other than the process of production accumulation. The possibility of the accumulation of the active part of the means of labor, and then the increase, on this basis, of production output in the existing enterprises without a corresponding expansion of their passive part--is a distinctive additional "effect" of this form of investments.

With the mass introduction of new equipment being carried out during technical reequipment, the active part of fixed capital increases in much greater dimensions than its total mass. For this reason, all measures aimed at the technical reequipment, reconstruction and expansion of existing production must secure the higher efficiency of the use of capital investments by comparison with the expenditures for new construction. And this is connected, above all, with the sharp reduction of expenditures for the passive part of fixed production capital.

The means being allotted for the improvement of existing production on the average are recovered three times more quickly than in the case of the creation of analogous production capacities by virtue of new construction, which is the most important factor in the reduction of losses arising as a consequence of the rapid obsolescence of the means of labor in conditions of dynamically developing scientific-technical progress.

Moreover, the introduction of more productive means of labor into existing production is conducive to the release of workers from it, which at the present time becomes a basic source of manpower, which is necessary for servicing the means of labor being newly introduced. The capital investments that are directed toward production are called upon to provide great flexibility and maneuverability, i. e., the ability of quick reorganization in accordance with the social requirements of both productive and personal [means of labor], the appearance of new [means of labor], etc.

Further, technical reequipment, as a rule, is carried out in existing enterprises which have state planned tasks, and therefore they are economically interested in drawing new equipment into the production process as quickly as possible. As a result, the equipment being directed toward technical reequipment will begin to operate much sooner than that which was allotted for new construction projects.

And finally, in the carrying out of technical reequipment and reconstruction, a significantly smaller share of construction and installation work in the volume of capital investments (usually no more 10 percent) is envisaged. Therefore, the higher the proportion of expenditures for technical reequipment and reconstruction of enterprises, the more optimal the correlation of expenditures for equipment and construction and installation work, which is conducive to the improvement of the technological structure of capital investments.

Naturally the question arises: What is the efficiency of the reconstruction and technical reequipment of existing enterprises? Surveys of some of them, conducted in 1984, have shown that the return of capital investments in the case of technical reequipment and reconstruction is twice as high as in the case of new construction and the expansion of enterprises, and the expenditures are recovered within periods which on the average do not exceed the norm.

The realization of technical reequipment in these enterprises has made it possible, according to our calculations, to increase the production volume on the average by 16 percent and to increase labor productivity by 18 percent while reducing the number of workers by approximately 4 percent, including workers engaged in manual labor--by 12 percent. Approximate calculations show that the redistribution of one and the same volume of fixed capital being introduced in new construction, technical reequipment and reconstruction in industry, even if in equal ratio, will make it possible to release a significant number of people and increase the industrial production output through an increase in labor productivity. And the use of the released workers in new enterprises will give additional volumes of industrial production. As a result, labor productivity in industry may increase by approximately 0.5 points, which is equivalent to the receipt of approximately an additional 4 billion rubles in industrial production.

The expansion of the scale of technical reequipment and reconstruction presupposes an increase in the efficiency of capital investments. The proportional capital investments per ruble of production growth in the case of such forms of reproduction of fixed capital is 10-20 percent less than in the case of new construction. For a group of reconstructed enterprises surveyed by the financial organs, the number of workers increased by 0.6 percent, labor productivity --by 32, expenditures per 1 ruble of production decreased from 82 to 76 kopecks, and capital investments were recovered after 2.6 years. At the same time, surveys of new construction projects have shown that, because of delays in the introduction of capacities, they were unprofitable, since their actual profitability was significantly lower than planned profitability. (Footnote 3) (EKONOMICHESKAYA GAZETA, 1984, No 23, p 12).

The high effectiveness of technical reequipment is observed in subsidiary and auxiliary sectors of production. In industry the level of mechanization and automation of the basic production processes is continuously increasing, while labor-intensive work operations are concentrated in the subsidiary and auxiliary shops and services of industrial enterprises. Meanwhile, in the case of the mechanization and automation of auxiliary work operations 3-4 times more labor resources than in the case of analogous measures in basic production, and the proportionate capital investments for the release of one worker in basic production come to 50,000 rubles, but in auxiliary production--30,000 rubles. (Footnote 4) (O. I. Volkov, "Tekhnicheskoye perevooruzheniye proizvodstva" [Technical Reequipment of Production], Moscow, Znaniye, 1984, p 14). The mechanization of auxiliary work operations is effectively reflected in the growth of the labor productivity of an enterprise as a whole. For example, in the 10th Five-Year Plan, at the Automobile Plant imeni Likhachev, the level of mechanization of transportation and warehouse work operations and other auxiliary operations increased by a factor of 1.6 (from 55 to 90 percent). As a result, the labor productivity of transportation workers increased by a factor of 1.5, which is equivalent to the release of 2,400 persons. By virtue of the improvement of transportation and warehouse work operations, the plant obtained a 1% percent increase in labor productivity, and capital investments for these purposes were recovered in less than 2 years. The utilization of this experience in the automobile plants alone will make it possible to reduce the number of auxiliary personnel by 27,000 persons.

However, this form of expanded reproduction of capital, too, has shortcomings. Even in the case of the best organization, technical reequipment and reconstruction impede the realization of the production process if it is not temporarily discontinued completely. Moreover, the construction organizations also cannot develop a broad front of work operations in conditions of ongoing production. This is one of the reasons for the dragging out of the deadlines for the reconstruction of enterprises, which frequently continues for several decades, and by the time of its completion the installed equipment and technological process are becoming obsolete.

In our view, it would be expedient, depending on the scale of the reconstruction of production (in terms of the volume of construction and installation work or in percent of the replacement of production capacities) to establish the lowest loading norms of basic production, right up to a temporary stop and closing-down of the shops and sectors from which the reconstruction work begins. At the same time, it is necessary for the construction organizations to be given an incentive for the reconstruction of existing production by means of the introduction of advantageous norms and material incentive measures.

As far as work in regard to technical reequipment of production is concerned, it is usually realized through the khozsposob method, i. e., through the efforts of the enterprises themselves, constantly and on an increasingly large scale. For this reason, this form of enterprise activity should be encouraged, not tolerating the prolonged use of obsolete means of labor.

The carrying out of work in regard to the technical reequipment of the material production sectors in real life runs up against a number of difficulties, reducing its efficiency as a whole on all levels of the national economy. Above all, this is connected with the fact that the planning and economic organs still do not regard technical reequipment and reconstruction as a basic direction for the introduction of the achievements of scientific-technical progress into production. As a result, the new and constructed enterprises have an advantage in receiving highly-productive equipment, machines, and new technologies, but in the majority of cases traditional or only improved equipment comes for replacement of equipment written off in the process of the renewal of existing factories. This leads to the fact that new equipment in enterprises that are being reconstructed frequently does not have technical or economic advantages over the equipment being replaced, which is why there is a still further increase in the gap in the technical level of new enterprises and enterprises that are being reconstructed.

At the 27th CPSU Congress it was noted that "every sector and every enterprise must have a precise program for the continuous renewal of production. Consequently, there is a considerable increase of the responsibility of planning and economic organs for the fulfillment of what has been planned." (Footnote 5) ("Materialy XXVII sezda Kommunisticheskoy partii Sovetskogo Soyuza", p 27).

The development and production, for technical reequipment and reconstruction, of non-serial types of equipment, whose share is growing owing to the output by the very enterprises, represent great difficulty. The technical and economic characteristics of such equipment, as a rule, are significantly inferior to analogous types of machine tools that are produced by specialized machine building enterprises. As a result, many enterprises turn out to be confronted with a

choice: Either to install serial equipment and adapt it for the manufacture of the necessary production, or to modernize endlessly the existing obsolete equipment.

The difficulties that arise in regard to the renewal of fixed production capital of the national economy are in many respects related to the inadequate balance coordination of the financial means being allotted with the volume and the structure of the fixed capital being earmarked for replacement. The existing financial base for the acceleration of the replacement of equipment does not correspond to the available physical (natural-material) resources: The machine building sectors do not provide adequate output of the equipment necessary for replacement. In our country there are quite a number of examples of the development and introduction of new types of equipment and technologies, which exceed foreign models in terms of many parameters and guarantee high efficiency of their use. However, this basically pertains to machine building for the oil, gas, and petrochemical industries.

As far as the industries are concerned that supply production for machine building itself, there are many reserves for increasing the quality of the output being produced. The acceleration of the process of fixed capital renewal and the securing, on this basis, of a qualitative turnabout in the efficiency of public production predetermine the necessity of the rapid development of machine building itself, and above all machine tool construction, instrument building, and the electrical engineering industry.

The development of machine building must secure the output of equipment that is necessary for new construction and for the replacement of obsolete equipment in accordance with the standard time of service. Meanwhile, at the present time the production of machines and equipment does not fully satisfy the needs of the national economy either in terms of volume, structure, or quality. The number of the types of machine tools being produced today is sharply limited; the parameters of equipment are to a great degree standardized and are not oriented to the requirements of individual enterprises.

The situation that has taken shape with the products being turned out by the machine building sectors is also determined to a significant extent by the operation in it of a great deal of obsolete capital. For this reason, we need to secure the technical reequipment of the national economy and industry, above all machine building itself.

At the present time, the share of the machine tools that are 20 years old and older constitute almost one-fifth of the total equipment in the inventory of the metal-working equipment of the machine building industry. According to our calculations, in accordance with the approved norms for amortization deductions, the annual write-off of metal-working equipment in the machine building ministries, given the maintenance of a stable inventory, should amount on the average to 5-6 percent; actually in 1984 a much smaller volume of equipment was written off.

The solution of the task of accelerating the technical reequipment of machine building requires an increase in the volume of capital investments directed into this industry. In the Political Report of the CPSU Central Committee at

the 27th CPSU Congress it was noted: "For the renewal of the industry, 1.8 times more capital investments are allotted than for the preceding 5 years." (Footnote 6) ("Materialy XXVII sezda Kommunisticheskoy partii Sovetskogo Soyuza", p 26). The presence of a large share of worn-out and obsolete equipment in the structure of the machine inventory leads to the fact that the expenditures for capital repair are growing annually. At the present time, they annually amount to about 30 billion rubles. (Footnote 7) (PLANOVYYE KHOZYAYSTVO, 1984, No 6, p 11). The number of workers occupied with repair exceeds the number of new machines and equipment engaged in production. The increase in capital investments in machine building can be attained only by virtue of a corresponding reduction of the funds directed toward capital repair of fixed capital.

In August 1985 the decree of the USSR Council of Ministers "On the Development of New Amortization Norms for Fixed Capital of the National Economy of the USSR" was adopted. In it were outlined measures for putting a stop to the inefficient capital repair of physically worn-out equipment. In addition, new, higher amortization norms are envisaged only for the complete renewal of fixed capital. In the 12th Five-Year Plan it is planned to undertake an inventory of fixed capital. These measures will be conducive to the reduction of expenditures for capital repair, will lead to the intensive write-off of obsolete models, and will make it possible to clear unnecessary equipment from the shops of existing enterprises. Moreover, this will help to eliminate a large number of instructions and provisions which up to now did not permit the write-off of equipment not being used.

The switch of part of the funds from capital repair to technical reequipment and, consequently, the reduction of obsolete and worn-out equipment in the inventory structure will secure an essential economy in the future. It must not be forgotten that the losses caused by the withdrawal of old equipment, to a significant degree, can be compensated through the fuller loading of the existing equipment.

Thus, in the 12th Five-Year Plan the scale of the technical reconstruction of the national economy is expanding. Almost half of all capital investments are being directed toward this goal. It is planned to renew the active part of the fixed capital by more than one-third, with the volumes of the withdrawal of obsolete capital growing twofold by comparison with the 11th Five-Year Plan. For the realization of technical reconstruction, the ahead-of-schedule development of machine building is envisaged, as well as the--by comparison with industry as a whole--more rapid renewal, in it, of the active part of capital--up to 10-12 percent a year.

Consequently, the improvement of existing production in the 12th Five-Year Plan will become one of the most important directions among the measures guaranteeing the intensification of public production. At the same time, such a direction does not at all decrease the significance of new construction as one of the cardinal ways of introducing the advanced achievements of science and technology in production. New construction will maintain its leading significance also in the realization of new achievements of scientific-technical progress (of fundamentally new technology). This is connected with the fact that in existing enterprises new equipment is frequently "built in" into the existing

technological process. For this reason, both theoretically and practically it would be unjustified to identify new construction exclusively with extensive expansion of production or mechanically link intensive development only with the improvement of existing production.

Experience indicates: The expansion of the material factors of production on a fundamentally new technical basis cannot be either purely extensive or purely intensive--in this process both directions of economic growth become interlaced. In the 12th Five-Year Plan the accent is placed on the massive renewal of existing capital. However, it is not excluded that in the future, when new technologies will be created, the volume of capital investments in the construction of new enterprises, which will be full automated and will use revolutionary technological processes, will grow in absolute and relative terms. This will be encouraged by the necessity of the integrated development of the territories of Siberia and the Far East--the raw material and energy reserve of our economy.

This perspective found reflection in the materials of the 27th Party Congress. "We cannot implement technical reconstruction," it is stated in the Political Report of the CPSU Central Committee, "without a radical improvement of capital construction. And this requires us to raise the entire construction complex to a new industrial and organizational level and to reduce, at a minimum to one-half, the investment cycle, both in the reconstruction of enterprises and in the installation of new projects." (Footnote 8) ("Materialy XXVII sezda Kommunisticheskoy partii Sovetskogo Soyuza", p 27).

Consequently, in conditions of the transition to a primarily intensive type of expanded reproduction, investment policy must be directed toward the technical reequipment of the existing production potential of the country; the qualitative improvement of investment machine building; and the increase, in capital investments, of the share of expenditures for equipment.

We are not talking about a special-purpose function of the maximization of the share of expenditures for equipment, but about the establishment of an optimal correlation in the distribution of capital investments. It is a well-known fact that a high share of equipment in all capital investments increases the effect of the further intensification of public production and makes it possible to carry out the technical reequipment of existing enterprises at the most rapid rates.

On the other hand, the requirements connected with the intensification of the reconstruction of fixed production capital will exert an ever-growing influence on the correlation between renewal and expansion in favor of the first process. This is an objective regularity of a capital-economizing type of intensively expanding production, which is the most important sign of the development of the economy.

Thus, the distinctive features of the investment policy in the 12th Five-Year Plan and in the future will be reflected in the structure of capital investments and in the directions and character of their use. The utilization of the products of the machine building industry, which will develop at accelerated rates, will become the basis of the investment process.

The further intensive renewal of the production apparatus of machine building, envisaged by the decisions of the 27th CPSU Congress, and the radical increase in the technical level and quality of machine building production will make it possible, in the final analysis, to realize more quickly the technical reequipment of the entire national economy and to increase labor productivity with a view to the acceleration of the socio-economic development of the country.

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## TRANSPORT COSTS, MANAGEMENT DEFICIENCIES DISCUSSED

Moscow SELSKAYA ZHIZN in Russian 10 Sep 86 p 2

[Article by L. Kormakov, chief, VNIIETUSKh (possibly All-Union Scientific Research Institute of Agricultural Transport Administration Economics) Section for the Organization of Transport Utilization, and candidate of economic sciences: "How Much Does It Cost To Haul Freight? A Solution is Required"]

[Text] One still frequently hears business executives speak unkindly of motor transport services, hears them complain about the extremely high prices of freight shipments and the flagrant missing of shipping deadlines, and the slipshod manner in which the drivers treat the products from our fields and farms. Their concern is understandable. Transport costs comprise a fifth of agricultural output costs, and the capability of the economies to operate in the black, to recoup its outlays and to fulfill its plans depends in large measure on how shipments are organized.

Of late, with the stirring up of new agro-industrial administrative agencies, one can hear more pleasant tones in voices when the talk turns to motor transport service. The following is just one example.

In the Khvorostyanskiy and Borskiy rayons of the Kuybyshev Oblast, united transport enterprises, directly subordinate to the RAPO [District Agrarian Industrial Association] have been set up. These enterprises have been based on inter-economic motor transport enterprises, former agricultural equipment transport and certain other organizations. This has reduced the costs for motor transport service while improving its quality. The two regions have succeeded in setting up a system for the centralized delivery of shipments to and from kolkhozes and sovkhozes, and it has become cheaper to bring in motor vehicles from Kuybyshev's industrial enterprises at harvest time. A reliable operational service has been set up, there is now supervision over the sending of trucks out on their routes, and the drivers are given comprehensive pre- and post-trip medical examinations. Unauthorized add-ons and services to foreign organizations have been reduced, as they were detrimental to the kolkhozes and sovkhozes. The productive base is undergoing intensive development.

Unfortunately, motor transport service problems are far from being solved so successfully in all the RAPO's. There is far too little initiative or persistence in achieving the assigned targets. The custom of living after the old way

and waiting for instructions from above has not become outdated. There is no need to await them. Are the district agro-industrial associations unaware, for example, that one half, and even more of the vehicles from special-purpose motor transport enterprises are always being used to serve organizations which have no relation to agro-industry? This has led to a situation wherein from 40 to 70 percent of an economy's motor vehicle fleet is constantly being used for shipping freight from outside that economy. Even during the harvest, when the transport service needs to provide uninterrupted service for the combines, many kolkhozes and sovkhozes have about half of their trucks taken up with hauling non-agriculturally related loads.

A study of the work done by motor transport vehicles which are brought in has shown that out of every 100 vehicles ordered from the motor transport enterprises, 70 to 90 of them show up at the facility later than the deadline shown on the order form, and 15 to 20 of them are one to two hours late. And 40-50 drivers quit working early.

Trying to improve the situation by using administrative levers leads nowhere. Only an economic mechanism can improve motor transport efficiency and reduce the cost of its services.

Take the contract relations between the agricultural and motor transport enterprises. The yearly freight contract became traditional. But in fact, the specific nature of agrarian production, the established procedure for planning material and technical supply and for capital construction are such that at the beginning of the year it is impossible to predict either real deadlines, volumes, or the conditions in which many types of freight will be shipped.

The winners turned out to be those RAPO's which conclude agreements for individual types of freight, and the agreements contain only prescribed conditions in which they are implemented. A contract for a specific type of work--hauling organic chemicals to the fields, and hauling bulk greenstuffs and hay from the field, can easily become a contract-agreement which will contain clearcut rates per unit of work, and which will name the specific drivers' brigade, show its wage fund, and the conditions for awarding bonuses. Setting up cost-accounting drivers' brigades is a reliable way to improve motor transport efficiency.

Specialists of all agro-industrial production teams are to work at changing the evaluations of the activities, and the material incentives of the cost-accounting motor-transport enterprises. These evaluations cannot be carried over from general-purpose motor transport without taking the specific nature of agricultural production into account. It will not do at all that an enterprise's economic situation, and bonuses for managers and specialists depend for the most part on fulfilling the plan for volume of freight hauled, freight turnaround and on revenues. It is understandable that in order to fulfill the plan by these indicators, and to operate competitively, the services for the kolkhozes and sovkhozes will be rendered "the less the simpler", since the roads to them, as a rule, are rough, the distances are short, many of the loads are light, and the majority of the cargoes are loaded and unloaded by hand.

The evaluative indicators must first of all reflect the contribution of the drivers to agricultural production's final results. In order for this contribution to be of full measure, the transport enterprise is obligated to observe its contractual obligations strictly, it is to be prepared to take shipping orders from kolkhozes and sovkhozes and to fulfill them on time and inexpensively, all the while observing technological discipline. The main evaluative indicator must only be the quality of the transport service, and the bonuses for the motor transport enterprise's managers and specialists must depend first and foremost on that.

As far as concerns such indicators as technical preparedness and the sending of the vehicle fleet out on its routes, the portion of freight centrally shipped and their prime cost, they must play an auxiliary role.

Regrettably, certain documents which have recently been adopted, and which regulate agro-industrial economic relations, are not devoid of deficiencies. Thus, the Standard Statute on the Regional Agro-Industrial Association makes payment at a uniform rate obligatory for shipments carried by agro-industrial motor transport. But neither the level of these rates nor the principles by which they have been structured reflect the conditions in which rural freight is hauled. That is why many of them are not competitive for the transport enterprises, particularly if heavy-duty trucks, such as are built by Kama and other motor vehicle plants, are used. If, for example, if the KamAZ-55102 agricultural dumptrucks are equipped for intra-farm hauls, then as the figures show, going by established rate, outlays exceed revenues by some 20-25 percent. The side-board equipped trucks made by this same firm operate at an even greater loss. In our opinion, use of uniform rates ought to be done away with. RAPO's need to be given the right to independently set estimated freight rates with consideration for local conditions, or to adjust the uniform rates within necessary limits.

There is a need for changes in the uniform time norms and estimates, by which the norms and wages are set for the drivers' labor. Thus, for example, in typical non-Black Earth Zone conditions, the wage rate for drivers of KamAZ-55102 trucks hauling silage from a Ye-280 combine for a distance of five km, figured up according to uniform estimates, will be half of the nominal wage index. It would not be difficult to imagine the reaction of a driver receiving an order to carry out such a job.

Moreover, drivers' wage rates for drivers of the GAZ and ZIL motor vehicles which are those most used around the village are 15-30 percent lower than the rates for the freight-hauling tractor drivers, even though the working conditions for both groups are also comparable with regard to the required level of job knowledge as well as regarding the burden on the nerves and the physique. Because of the fact that the uniform time norms are frequently not met, and the level of wage rates is low, many agricultural facilities have deliberately turned to the practice of unauthorized add-ons.

Only via the widespread use of economic administrative methods can the quality of the service of all sectors of the agro-industrial complex be decisively improved.



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## RSFSR GOSAGROPROM HEAD ON TASKS FOR APK IMPROVEMENT

Saratov STEPNYYE PROSTORY in Russian No 8, Aug 86 pp 2-7

/Article: "Urgent Tasks of Agroprom"/

/Text/ A seminar-conference organized by RSFSR Gosagroprom was held in the city of Volgograd on the 29th and 30th of May this year. Its participants -- representatives of agro-industrial committees of autonomous republics, krays and oblasts of the Russian Federation and executives of USSR and RSFSR Gosagroproms -- gathered together for the purpose of discussing the vital problems concerned with further improving administration and the economic mechanism for management in the republic's APK /agroindustrial complex/ and for acquainting themselves with the experience of the Volgograd workers in carrying out the USSR Food Program and the decisions handed down during the 27th CPSU Congress.

In particular, they visited the Dzerzhinsk enterprise for logistical support for the oblast's agro-industrial complex and a technical enterprise specializing in the production of precast structures for production facilities of the Orsk type. In addition, at the Mikhaylovskiy RAPO /rayon agroindustrial association/ they listened to a report delivered by its chairman S.A. Klupov on reorganization of the rayagroprom administration and they studied the experience of the enterprise in furnishing logistical support for farms in the rayon, a butter and cheese combine and the Sebryakovskiy Sovkhoz, the cultivation of winter wheat using the intensive technology at the Bezymyanskiy Sovkhoz and the work of the agrochemical service in the development of strong grain and in protecting plants against pests and diseases.

Special interest was displayed in a training center created at the Nizhne-Volzhsk NIISKh /Scientific Research Institute of Agriculture/ and in a reviewing stand containing agricultural machines and implements, produced in the form of patronage assistance to the rural areas by industrial enterprises in the city of Volgograd and the oblast, for cultivating soil using moisture and energy-conserving technologies and growing

vegetables and forage crops and also land reclamation equipment and other types of equipment for the preparation of feed.

The following individuals participated in the work of the seminar-conference: secretary of the CPSU Central Committee V.P. Nikonov, member of the CPSU Central Committee and 1st deputy chairman of the RSFSR Council of Ministers and chairman of RSFSR Gosagroprom L.B. Yermin, member of the CPSU Central Committee and 1st secretary of the Volgograd Oblast CPSU Committee V.I. Kalashnikov, head of a section in the Department of Agriculture and Food Industry of the CPSU Central Committee V.A. Ukolov, secretary of the Komsomol Central Committee N.K. Dolgushkin, RSFSR ministers and party, soviet and economic executives of Volgograd Oblast.

During a plenary session, a report was delivered by the 1st deputy chairman of the RSFSR Council of Ministers and chairman of Gosagroprom for the RSFSR L.B. Yermin on the carrying out of measures concerned with implementing the decrees of the CPSU Central Committee and the USSR Council of Ministers for further improving administration and the economic mechanism for management in the republic's agroindustrial complex.

At the present time, the RSFSR Gosagroprom system includes 24,500 kolkhozes and sovkhozes, 6,000 enterprises of the meat and dairy industry, 10,000 other enterprises and organizations that provide services for agriculture, more than 4,000 construction organizations and 155 scientific-research institutes.

In solving the chief task -- intensifying the integration of agriculture with the processing industry and with branches which provide services for the rural areas -- Gosagroprom is giving special attention to the rayon and oblast elements. The center of gravity for solving the principal problems of integration and improving the work of the entire agroindustrial complex as a single entity has shifted to these elements.

The work of all APK subunits was further activated with the creation of the new organs of administration and less inter-departmental isolation and order of precedence was evident. Maximum attention is being given to increasing the production of field and farm products with fewer expenditures of labor and resources.

The enterprises for providing services for agriculture are for the most part satisfying the requirements of the kolkhozes and sovkhozes in a more complete and timely manner and they are supplying logistical resources on a more regular basis.

It is our opinion that the integration of agriculture with the processing industry and with enterprises and organizations which provide services for the rural areas and also the creation of a more improved system of administration for the entire agroindustrial complex as a single entity have been carried out in Krasnodar and Stavropol krays and in Rostov, Kaluga, Volgograd, Arkhangelsk, Kaliningrad and some other oblasts better than in a number of other areas.

Thus, in Krasnodar Kray, from the very beginning of the formation, kray production associations of the meat and dairy, canning and sugar industry, which were intermediate subunits, were eliminated, and their enterprises, with the exception of two meat combines and six large creameries, were made directly subordinate to RAPO's.

For the management of these enterprises, two sections were created in the kray's agroindustrial committee, in the department for the production, processing and marketing of livestock husbandry products: one for the processing and marketing of milk and another for livestock and poultry. There are small subunits for managing these branches in the departments for planning and economic development of the APK and logistical supply.

A number of problems are being solved at the kray's agroprom level: ensuring that the enterprises are supplied with raw materials, the sale of finished products, control over observance of the production technology and the mastering of new types of products, the construction and modernization of enterprises and their logistical supply in the form of specialized machines, equipment and materials.

Appropriate services for controlling theenterprises of the meat-dairy and food industry have been created in the RAPO and they have been staffed with specialists who are familiar with the production-financial activities of these enterprises.

The specialists and leaders of rayon agroindustrial associations are bringing about an increase in production, raising the quality of the raw materials for these enterprises, ensuring deliveries of the raw materials in accordance with agreed upon schedules and the acceptance of products in their production areas, they are raising the technical level of enterprises, furnishing them with assistance in the form of general purpose logistical resources and with labor and financial resources as needed and they are exercising operational control over their activities. For their part, enterprises of the meat and dairy industry are furnishing assistance to the kolkhozes and sovkhozes by supplying their laboratories with the equipment needed for analyzing and raising the quality of products and for training personnel.

In the opinion of leaders and specialists attached to RAPO's and processing industry enterprises, such integration and the system of administration are already producing the initial results.

The Krasnodar workers have displayed a great amount of responsibility in their radical reorganization and creation of a single engineering service and also a single service for logistical supply and capital construction, which at the kray and rayon levels are headed by the deputy chairmen of kray committees and the RAPO councils.

Within the administrative system, these services have been defined rather clearly from an organizational standpoint: a number of enterprises and appropriate structural subunits have been designated and they have been assigned specific tasks and the methods for solving them. This has made it possible to organize the work of the services in a new and more effective manner.

Thus the single engineering service of the Dinskiy RAPO, for example, to whom the repair-technical enterprises of the former Selkhoztekhnika are directly subordinate, abruptly diverted their activities towards satisfying the needs of agricultural production and began solving engineering problems as they arose in a more efficient manner, including the production of deficit not-standard items of equipment and various devices and attachments for agricultural machines and spare parts.

The RAPO began to be guided more objectively by the engineering services of the kolkhozes and sovkhozes, to exert more active influence on improved utilization of their own repair base and to further advance workshop specialization.

Work is being completed successfully here in connection with the integration of truck transport operations at various enterprises and organizations throughout the rayon, in keeping with the creation of a single powerful column.

The efforts of the single engineering service have already had an effect with regard to raising the technical readiness of the machine-tractor pool and lowering the cost of repair work. Better use is now being made of motor transport equipment and the expenses required for maintaining this equipment have declined. Spring field work was carried out in a more organized manner.

In the work being carried out by the single service for furnishing logistical support in Krasnodar Kray, an attempt is obviously being made to mobilize additional sources for supplying material resources and for utilizing them in a more efficient manner. Appropriate subunits have been created here for providing logistical supply for enterprises of all APK branches. A network of departments for the restoration of worn out parts, for use in place of deficit spare parts, is expanding on an extensive scale. Towards this end, an inventory was taken of non-liquid equipment and spare parts on farms and at enterprises included in the APK and their commission resale was organized at specially created stores.

A single service for capital construction is also in operation. The state-cooperative Krasnodaragropromstroy Association has been formed based upon the kray association of inter-kolkhoz construction organizations and the production administration for agricultural construction. Construction management departments created within the krayagroprom are performing the functions of client and together with other subunits they are planning construction and ensuring that it is supplied with the required planning-estimates documentation and all resources.

The organizational structure for administering capital construction at the rayon level has been resolved. State-cooperative mobile mechanized columns and sectors subordinate to RAPO's have been created here and for staffing problems -- subordinate to Krasnodaragropromstroy.

It is our opinion that the leaders and specialists in Ust-Labinskiy Rayon in this same kray successfully carried out all work concerned with integration and the elimination of departmental barriers at the rayon level. A single organ for APK administration has been created here in the form of a RAPO, with planning, financing and logistical support for all enterprises and organizations in the rayon being carried out by the same authority.

The initial results of harmonious work between the Kirovskiy RAPO in Stavropol Kray and its single engineering service are attracting attention.

The task of integrating the farms with the processing industry, repair-technical enterprises and construction and other organizations is being solved in a skilful manner by the Mikhaylovskiy RAPO in Volgograd Oblast.

A radical reorganization of administration was carried out here in a bold and confident manner, mutually advantageous economic relationships were developed and all of the farms, enterprises and services found their place in the overall structure and thus they were able to provide some input in achieving high final results. This was particularly evident in the relationships between the collectives of a large vegetable production Otradnoye Sovkhoz and the Mikhaylov Canning Plant which processes its output and to whom the RAPO is furnishing effective assistance in completing modernization work.

The results of such joint efforts are readily apparent: during the first 4 months of this year and compared to the same period for last year, the farms and enterprises in Mikhaylovskiy Rayon increased their milk production by 28 percent and meat -- by 38 percent. The farms received 830,000 additional rubles alone for having raised the quality of their output.

One cannot help but take note of the creative enthusiasm being displayed by rural workers in the various areas as they carry out their tasks -- at kolkhozes and sovkhozes, at enterprises and construction projects, that is, at the very wellsprings of material production. And this is occurring owing to the fact that the personnel understand the spirit of the radical administrative reorganization and they are aware that nobody is paralyzing the initiative of the farm leaders and specialists. Together with the field and farm workers, they themselves are making decisions on how to organize production, how best to utilize the land and how to employ the intensive growth factors and those powerful economic levers which the party and government provided them with during the course of improving administration and the economic mechanism of management.

True, throughout the country as a whole, only the initial steps have been taken along the path for radically reorganizing the APK administration. But these steps convincingly testify to the fact that the best results are being achieved by workers attached to those committees and associations, where the party's instructions on administrative reorganization have truly been carried out, where strong integration has been achieved, where departmental barriers have been dismantled, where mutually advantageous economic relationships have been established for partners and where the hands of the leaders and specialists of kolkhozes and sovkhozes and processing enterprises have been untied.

At the same time, final solutions have still not been achieved for many problems associated with improving administration and particularly at the rayon level. In many oblasts, krays and ASSR's, in place of the abolished administrations for the meat, dairy and food industry, the service for the use of chemical processes and other subunits, production associations of the same orientation and with all of the former services have been created attached to the agroproms.

All of this tends to negate the role and responsibility of RAPO's for the comprehensive and balanced development of the agrarian sector of the economy in a rayon.

As a rule, the engineering services in RAPO's are headed by the deputy chairmen of the associations. Roughly in one half of the rayons, they also remain as leaders of the RTP's /remontno-tekhnicheskiye predpriyatiya; repair-technical enterprise/. Experience has shown that such a combination of duties has not justified itself. It is obvious that the engineering services and repair-technical enterprises in a rayon should be directed by different persons.

Substantial changes have still not taken place in the organization of logistical supply; a unified service has still not been created at all levels.

The funds for logistical resources have been set forth not in a single line but by departments. As a rule, the supply bases are found in the structure for the repair-technical enterprises and this inevitably leads to a primary allocation of resources for satisfying the internal needs of the RTP's. The logistical supply service has also been retained at other enterprises in the rayon which are not subordinate directly to RAPO's and this inevitably leads to duplication and parallelism.

In a considerable number of oblasts and rayons, the committees and RAPO's have not been staffed with specialists skilled in providing logistical support for enterprises of the food and meat and dairy industry and this is restraining the organization of efficient work in these branches. The interests of the work require the creation in the rayon, within the immediate future, of unified agricultural supply services as independent subunits of RAPO's.

The administrative structure for capital construction has turned out to be deficient. The rayon's contractual construction organizations are for all practical purposes operating on the basis of an old program. During the course of forming the new organs, the service for the client and for exercising technical supervision over construction became weakened.

Many complaints are being heard in the various areas concerning the regulation of planning, financing and crediting operations.

The procedure for turning over the production-financial plans of RAPO enterprises to oblast committees has become complicated.

No change has taken place in the operational style of leaders and specialists at many RAPO's. They are still exerting only a weak influence on the basic problems of production and on raising its efficiency. Just as in previous years, they are burdened with their workloads, temporary duty assignments and trips made with inadequate instructions as to where and how to carry out their sowing and milking operations, how to use their machines and so forth.

The flow of paper correspondence is very great. The RAPO specialists request information which is not available in reports issued by the TsSU /Central Statistical Administration/.

Many specialists and leaders are only slowly reorganizing their work in light of the new requirements and quite often they possess only a vague notion as to how to correct the status of affairs and exert influence on all elements of the APK. Many of them clearly lack the ability to engage in economic reflection or to manage a farm in an economically intelligent manner.

One such negative phenomenon, parasitism, is being noted among a number of farm, RAPO and agroprom leaders and it is attracting attention. Many of these individuals view the reorganization as a horn of plenty as they wait to receive a new flow of material and financial resources.

We cannot tolerate a situation wherein some leaders believe that economic independence allows them to disregard the interests of the state and accepted farming systems, to reduce their sowing areas, to reject troublesome crops and strains of livestock and to offer nothing in compensation.

One of the chief reasons for such negative phenomena lies in the fact that the psychological reorientation of personnel and their adaptation towards a new approach towards APK administration from the standpoint of quality are proceeding very slowly. It is obvious that as yet not everybody is aware of the importance, scales and seriousness of the changes taking place in the agroindustrial complex.

The interests of the work require that the integration of all APK branches as a unified entity be completed in the immediate future, with local conditions being taken into account. They must be made directly subordinate to the agroproms and their organs. This applies first of all to the creameries, meat combines, enterprises of the agrochemical service, selkhozenergo, installation sections and other enterprises.

In this regard, the oblast associations of the meat, dairy, food and canning industry and others must be converted into departments and sections of the agricultural committees of oblasts, krays and autonomous republics. In this manner the problem of dual subordination will be eliminated. The supply organizations of former ministries and departments should also be investigated immediately and transferred over to the agrosnab /agricultural supply/ system. The functions of the service for operations and repair services must be defined more specifically.

In addition to performing the function of supply for the kolkhozes, sovkhozes, enterprises and organizations, Rayagrosnab must also carry out an extensive amount of work in connection with strengthening its own base, creating specialized sections for the assembly and adjustment of equipment obtained from plants, producing packaging materials, organizing centralized deliveries of logistical resources to the farms and gathering up worn out parts for restoration purposes.

Once again a requirement exists for examining thoroughly those problems concerned with improving the work of the engineering-technical service for RAPO's. The functions of the service for operations and repair services must be defined more specifically. The technical servicing of the machine-tractor pool and equipment at livestock farms and enterprises of the processing industry, light repair work and the diagnosing of equipment must be carried out directly on the

farms and at enterprises. With regard to complicated repairs on tractors, motor vehicles, engines, coolers and milking equipment and the production of non-standard equipment and machines for farms, this work must be directed by repair-technical enterprises. They must satisfy all of the requirements of the RAPO processing and service enterprises in the repair of equipment.

The capital construction service warrants special mention. At the present time, the formation of unified cooperative-state associations and organizations for construction work at kolkhozes, sovkhozes and other enterprises of the agro-industrial complex has for the most part been completed in the various areas. At the same time, very little reorganization work has been carried out in some oblasts, krays and autonomous republics, construction organizations remain isolated and even their names have not changed and excesses are being tolerated in the creation of many trusts and administrations within the associations. Instead of simplification, a cumbersome system has been created for administering capital construction, in which the lower construction organizations and clients find themselves in a worse situation. In the near future, all possible steps must be taken aimed at creating a unified and powerful sub-branch for capital construction within the agroprom system, one which will be capable of carrying out the increasing tasks. In the process, considerable reliance will have to be placed upon expanding the rights of those local elements which are engaged directly in carrying out the construction work.

Towards this end, Agropromvostokstroy and Agropromselstroy are being abolished at the republic level and the unified All-Russian Cooperative-State Association Rosagropromstroy is being created. This association must ensure the construction, within the RSFSR agroindustrial complex system, of projects of a production, cultural-domestic, housing and road nature, with the construction being carried out by means of the contractual method, further industrialization of construction, the organization and technology for construction-installation operations, improvements in quality and a reduction in the construction schedules.

The regulation and implementation of improvements in construction administration must also be carried out at the oblast and rayon levels. In the process, a maximum amount of attention must be given to the rayon level.

The plan indicators for capital construction must be determined by the kolkhozes, sovkhozes and other state enterprises and organizations within the assigned limits for capital investments and construction-installation work. The summary plans for capital construction within the agroindustrial complex of a rayon, oblast or republic must be developed based upon these plans.

In order to achieve such a system, the inter-farm construction organizations must be included in a RAPO structure and be subordinate to it and they must bear responsibility for fulfillment of the contractual work plan.

The oblast has need for the Agropromstroy Cooperative-State Organization, which must implement a unified policy in capital construction, ensure the carrying out of the various plans and organize in a planned manner the production of construction materials for the kolkhozes, sovkhozes and other state and cooperative organizations.

All of the construction, installation and start-up and adjustment subunits of former ministries and departments, which were part of the RSFSR Gosagroprom structure, should be included in a unified construction service.

At the present time, the agroprom organs are being granted great rights in matters concerned with the planning, financing and designing of construction projects. Full use must be made of these rights. At the same time, a constant search should be carried out for new forms and economic levers which would stimulate the builders into reducing the normative schedules, lowering the estimated costs and carrying out work concerned with the modernization of enterprises.

In addition to the administrative reorganization, concern should also be displayed for the selection and placement of the construction personnel and for their training and retraining. Engineers and foremen from the staffs of trusts and administrations should be assigned to inter-farm mobile columns and enterprises of the construction industry. Concern should be displayed for them and they should be provided with fruitful working conditions.

These then, in our opinion, are the principal arguments and practical tasks for carrying out a program aimed at improving the administration of the agro-industrial complex and reinforcing its integration.

We consider our task to be that of concentrating the attention of the staff of Gosagroprom on carrying out the large-scale special purpose programs and ensuring that they are provided with scientific-logistical and financial support. The work of preparing instructions, statutes and recommendations should be completed more rapidly, they should conform to the new requirements and, most importantly, they should promote strengthened integration and the elimination of departmental isolation and they should be aimed at achieving higher final results.

Permit me now to discuss the tasks associated with implementation of the decree of the USSR Central Committee and the USSR Council of Ministers entitled "Further Improvements in the Economic Mechanism for Management in the Country's Agroindustrial Complex," in which the principal measures are set forth for converting over to economic methods for management, expanding independence and raising the responsibility of enterprises and organizations for their final operational results.

The adoption of this most important decree in our republic was preceded by a great amount of work aimed at improving the administration of the agroindustrial complex and introducing cost accounting and the collective contract into operations on a more extensive scale at kolkhozes, sovkhozes and other enterprises and organizations. Economic experiments were carried out in some krays, oblasts and rayons and on some farms.

Thus, for a period of 2 years now, many of the conditions set forth in the above decree have been in use at the Kuban Agroindustrial Combine. They are also being employed at the Stavropol Broiler Association. A certain amount of experience has been accumulated in the introduction of the normative planning method into operations in Vologda, Kuybyshev, Omsk, Moscow and Vladimir

oblasts and in Krasnodar Kray and the Tatar ASSR and the normative method for the formation of a wage fund -- in Voronezh Oblast.

Since the beginning of this year, all of the kolkhozes and sovkhozes in Stavropol Kray and also six rayons of other krays and oblasts have been converted over to the principles of self-repayment and complete cost accounting. A decision has been handed down calling for the creation of large agroindustrial combines of the Kuban type in Ramenskiy and Kashirskiy rayons in Moscow Oblast. The question concerning the creation of similar combines in other regions of the republic is being studied while taking into account the recommendations from the various areas.

On the one hand, the extensive use of accumulated experience will make it possible to solve the chief task more actively and more skilfully -- the rapid conversion of kolkhozes and sovkhozes and other enterprises and organizations of the agroindustrial complex in the republic over to the new conditions for management and, on the other, to continue the experimental work aimed at further improving the economic mechanism.

A thorough and comprehensive analysis of the production-financial activities of agroprom enterprises and organizations must be carried out in all areas and organizational measures must be developed for carrying out the conditions stipulated in the decree.

It should be borne in mind that regardless of how well all of the methods and norms are developed in the center, they will be unable to take into account all of the peculiarities and differences which prevail in the various regions of our republic.

Thus we consider it necessary for each farm, rayon, kray, oblast and autonomous republic to have special passports which indicate the economic evaluation assigned to the land and also the amount of support available in the form of fixed productive capital and labor and other resources. There must also be information on the dynamics of branch development throughout a number of five-year plans and on quantitative and qualitative indicators, including the effectiveness of land utilization, productive capital and labor and material resources. And we must now use this analytical data and immediately commence the development of norm variants for determining the volumes for the production and procurements of products per unit of land area, production expenditures, wage funds, logistical resource supplies, volume of capital investments and others.

For each enterprise and each farm, a study must be undertaken of the actual wage expenditures for the production of a unit of product and per 100 rubles worth of gross output and all illegal payments and overexpenditures must be eliminated so that, when converting over to the normative method for planning, more growth in labor productivity will be achieved compared to growth in wages.

In conformity with the decree, for each oblast, kray and autonomous republic, a definite amount of deferment for USSR Gosbank loans has been defined for kolkhozes, sovkhozes, interfarm enterprises and enterprises of the food industry. Attention must be given to determining the list of farms and the amount of the deferment.

The deferment should first of all be given to economically weak and remote farms. Such farms should be given the opportunity to make full use of all of the economic advantages offered by the new decree. This will serve to strengthen the farm economies and allow them to operate on a self-repayment basis.

However, there is very little material interest here. Conscientious interest is needed. Indeed it is no secret that many backward farms are headed by weak leaders who rely for assistance upon the state or upon economically strong farms and do very little with regard to utilizing their internal reserves, improving their labor organization or raising discipline and responsibility for the fulfillment of plans. Thus we should once again study very carefully those who are heading these backward farms and ensure that they are supplied with experienced and skilled personnel.

Greater use should be made of the practice of sending all-round brigades to such kolkhozes and sovkhozes, brigades which are headed by specialists of oblast agroindustrial committees and RAPO's, such that they will be able to study thoroughly the status of affairs in the various areas, acquaint the local leaders and specialists with the actions they must take and assist them in adjusting to the new conditions. But no allowances can be made in the process and there should be no reduction in exactingness.

It must not be forgotten that the initial cause of all failures is more often than not the attitude of people towards their work. As a rule, we lack the ability to organize labor, to lead people or to make full use of the human factor and the great potential of man.

In improving the economic mechanism for management, we must devote special attention to the introduction of cost accounting and the collective contract, since they encourage creativity and force one to search for and introduce progressive developments, improve the quality of output, maintain a strict accounting for each ruble and achieve both large and small economies.

However, despite the great amount of work carried out in this regard, the work aimed at introducing the collective contract into operations is being carried out only slowly in a number of krays, oblasts and autonomous republics and up until now a portion of the agricultural workers has not been sufficiently familiar with the essence of the non-schedule system and lacks confidence in its advantages.

The task consists of completing the work of converting over to the collective contract and internal cost accounting in all areas and in all APK branches within the next 2-3 years. More complete use must be made of the family contract, especially for the cultivation of forage crops, vegetables and in other branches as well.

It is stipulated in the decree that the production-financial plans of kolkhozes and sovkhozes must take into account the output production volumes of livestock husbandry on private plots. In this regard, we must once again examine our plans and increase the allocations of feed, pastures and other services for sovkhoz workers and kolkhoz members, in order to develop the private plots

and satisfy fully the population's requirements for young poultry stock and increase considerably the sale of young pigs.

Following the May (1982) Plenum of the CPSU Central Committee, the economies of many farms throughout the republic became considerably stronger. On the whole, last year the republic's kolkhozes and sovkhozes earned 11.4 billion rubles worth of profit.

Nevertheless, over the past 2 years some negative phenomena were observed in the economy of the republic's agroindustrial complex. Growth in gross output began to lag behind the rates for invested resources, increases took place in the production costs for many types of agricultural products and the productivity level declined from 22 percent in 1983 to 16 percent in 1985. In particular, the farms in Saratov Oblast tolerated a large increase in production costs per unit of product and a reduction in their production profitability.

The new methods of management require a new approach and new actions on the part of our personnel. Thus special importance is being attached to personnel training.

In the matter of organizing personnel training, in connection with implementing the decree on further improvements in the economic mechanism for management, many oblast and kray committees and the gosagroproms of autonomous republics are acting in a sluggish manner. An objective study of the conditions of the decree has not been organized in all areas. Meanwhile, we have information at our disposal which indicates that such leaders and specialists of farms, RAPO's and even agroproms possess only a vague notion as to the contents of this most important document.

These shortcomings must be corrected in the immediate future and thorough training must be organized in all areas for the leaders, specialists and middle echelon workers, so as to provide them with a good knowledge of the specific methods for improving the economic mechanism for management and particularly such categories as prices, production costs, profit, profitability and self-repayment. Even more important is the need for them to know how to employ these categories in their practical work.

It bears mentioning that in this regard work has already commenced with the leading personnel at the oblast and republic levels. More active training should now be provided at scientific institutes and leading farms for the leaders and specialists of agroproms, RAPO's and farms, with practical demonstrations being given on the normative-resource planning method and other levers for economic administration under the new conditions for management.

Our agrarian scientists must play a large role in all of the above. Indeed, in the republic's Gosagroprom system alone there are 155 scientific-research institutes. This is a formidable force. The branch science must be used not only for developing scientific recommendations but also for ensuring their practical introduction into production operations. This fact must be remembered since we still have scientific workers and entire institutes and experimental stations which, as the saying goes, work only for themselves, for a thesis, and do very little for the sake of production.

In order to include science thoroughly in our overall work, special departments for summarizing and introducing leading experience and scientific achievements into production operations must obviously be created in Gosagroprom and in the agroproms of krays, oblasts and autonomous republics.

All work concerned with improving administration and the economic mechanism for management must be directed towards achieving a rapid solution for the chief task -- carrying out the Food Program, the implementation period for which will end during the current five-year plan.

In order to carry out the plans as outlined, we must achieve considerable increases in the production of grain, potatoes, sunflowers and vegetables this year and also considerable growth in the production and purchases of livestock husbandry products.

These are large and yet realistic tasks, providing the true potential of agroprom is employed for carrying them out. At the present time, Gosagroprom has entered a very important period: the sowing of winter crops and the procurement of feed are nearing completion and crop harvesting and processing work is underway.

It bears mentioning that this year all of this work is being carried out in a more organized and high quality manner, with progressive technologies and methods being introduced into operations on an extensive scale.

At the same time, there are also some shortcomings. In a number of areas, the dimensions of the grain crop sowing areas have decreased considerably and they are now even less than those called for in the farming systems.

This year, as never before, the grain fields must be protected fully. The agroproms must establish firm control so as to ensure that each hectare sown in grain crops is harvested only for grain. We must put an end to the liberties that are being taken in some areas with respect to the sowings of these crops. We will strictly be held to task for this.

Special attention should be given to the intensive technologies for the cultivation of winter crops. Here all of the technological operations must be carried out in a very strict manner. Constant and effective control must be exercised over this work.

The preparation of the drying and storehouse economy, the development of which is of special importance at the present time, is being carried out slowly.

An urgent task of the main administrations for mechanization and electrification and logistical support for the oblast, kray and republic agroproms is that of achieving effective solutions for all of the problems associated with maintaining the machine-tractor pool in a high state of technical readiness, efficient organization of services and the use of equipment.

We cannot tolerate a situation wherein, during the harvest period on the farms, tens of thousands of tractors, motor vehicles, combines and other machines remain idle as was often the case in the past.

This year, a special purpose program for ensuring that livestock husbandry is supplied with feed protein has been developed or is nearing completion in all areas. It must be carried out in a very strict manner, since in the absence of a solution for the feed protein problem we will be unable to solve the task of increasing the production of livestock husbandry products.

We would like to focus special attention on the valuable initiative displayed by workers in Leningrad, who procure, account for and report on their feed not simply on the basis of volume but rather taking into account the plant protein content in the feed. Towards this end, a preference is being shown here and on the feed fields for sowings of high protein crops and the gathering up and use of waste materials of the food and meat and dairy industry has been organized.

Reclaimed lands constitute a tremendous reserve for increasing the production of feed and all agricultural products. However, in many oblasts only 70-75 percent of the potential of these lands is being utilized.

The task of the agroindustrial complexes and aquicultural organs consists of rapidly correcting the existing shortcomings. Intensive technologies and leading forms for labor organization and wages must be employed extensively on the reclaimed lands and these lands must be provided with everything that is needed: fertilizer, equipment, plant protective agents and other logistical resources, in the interest of obtaining high yields.

In discussing maximum increases in the production of farming and livestock husbandry products, it should be borne in mind that the party's central committee and the government have assigned the task of achieving rates, in as short a time period as possible, which will allow a number of oblasts to convert over to self-support and reject subsidized deliveries.

The collectives of processing enterprises must be mobilized for the purpose of raising production efficiency, utilizing resources in a thrifty manner, eliminating product losses, introducing waste-free technologies and achieving a considerable increase in the production of food products and improving their quality. Many facts indicate that large reserves are to be found here.

In particular, the collective at the Novocherkassk Municipal Creamery in Rostov Oblast is carrying out a great amount of work in connection with expanding the variety of products being produced and mastering new types of products based upon the processing of secondary raw material resources. The production of 20 new types of food products was mastered here within a comparatively brief period of time, with use being made of skim milk and whey. In all, this plant produces 58 types of products in the course of a year's time. This includes dietetic protein pastes with fruit fillings, fruit dumplings with cottage cheese, protein milk, sour milk drinks and sweet dairy desserts for children's nourishment. All of this enabled the plant's collective to sell 10.2 million rubles worth of products in excess of the plan during the past five-year plan.

An even greater contrast is being observed in the indicator for product yield from the processing of 1 ton of livestock. Compared to meat combines in Kemerovo Oblast where 2,650 rubles worth of various types of meat products were produced during the 1st quarter from 1 ton of livestock, in the Mordovian ASSR --

only 1,033 rubles worth of such products. Extremely low yields of meat products are being obtained at enterprises in Orel, Kaluga, Kursk and Penza oblasts. Yes and for the Russian Federation as a whole, only 1,699 rubles worth were produced and sold.

One reason for such a substantial difference lies in the fact that raw materials are being processed in an intensive manner in Kemerovo Oblast and extensive use is being made of sub-products for food purposes. On the other hand, most of the meat in the Mordovian ASSR is being sold in the form of carcasses and only 24 percent -- as semi-finished products or in packaged form.

We consider another reason for this situation to be the different attitude being displayed towards the introduction and production of new equipment and technology. At those enterprises where concern is shown for this factor, the obsolete equipment is boldly being either replaced or modernized. And it is here at these enterprises, with minimal expenditures and within brief periods of time, that increases are being achieved in the production of goods and improvements realized in their quality.

A fine example is being set in this regard by the collective of the Kirsanov Dry Skim Milk Plant in Tambov Oblast, which during the inter-season period of 1984-1985 replaced a drying unit with a more productive one, installed a vacuum apparatus and expanded its milk receiving department. This made it possible to increase the enterprise's planned capability by a factor of 1.5 and the output of dry milk products by almost twofold.

Thus a large reserve is available through the modernization and rebuilding of obsolete equipment. This experience was even more valuable owing to the fact that all of the work was carried out using internal resources and in the absence of large capital investments.

The initiative displayed by worker collectives of industrial enterprises in Leningrad is also deserving of warm support and dissemination. Here a decision was made to furnish effective assistance to plants of the meat and dairy and food industry in their oblast in the modernization and replacement of obsolete equipment. Towards this end, they decided to convert their more improved types of equipment and machines over to a double-shift work regime, that is, to use them at their maximum capability and thereafter to dismantle the equipment thus made available and send it to enterprises of the agroprom.

It is difficult to exaggerate the importance of this initiative, since there are large quantities of obsolete equipment at enterprises of our processing industry and today no real opportunity exists for replacing this equipment in a planned manner. Time is needed. This is why it is very important at the present time to make full use of the internal reserves of the oblasts and autonomous republics.

More extensive use must be made in all areas of the system for providing patronage assistance to the rural regions and not only by industrial but also by road and construction organizations.

During the current five-year plan, we must utilize more than 110 billion rubles worth of capital investments, raise construction to a new industrial and

organizational level and reduce the investment cycle by a factor of two, in both the modernization of installations and the creation of new capabilities.

However, we began this five-year plan in construction in an unsatisfactory manner. During 4 months of this current year, the plan for the use of state investments was not fulfilled.

Serious shortcomings continue to be noted in the planning of capital construction and in the dispersion of resources among numerous installations.

As you can see, the range of urgent tasks confronting the agroindustrial complex is both broad and diverse. The task of achieving solutions for them requires the complete mobilization of our forces and resources and skilful utilization of the increasing potential of all elements of the APK.

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## CARTOON ON EXCESSIVE PAPER WORK, TOO LITTLE FEED

Minsk SELSKAYA GAZETA in Russian 6 Sep 86 p 4

[Text] In some republic RAPO's they are carried away with paper creativity instead of live labor.




-- If only we had as much feed, Rogulya!

Key:

1. Plan
2. Silage Procurement Plan
3. Haylage Stacked
4. Grass Cut
5. Hay Procured
6. Account
7. Report
8. Ration

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CSO: 1824/39

## REASONS CITED FOR INCREASE IN PERSONAL SAVINGS

Moscow ARGUMENTY I FAKTY in Russian No 38, 16-22 Sep 86 p 8

[Article by A. Yakovlev, candidate of economic sciences, in response to a question from I. Skachkov from Frunze.]

[Text] [Question] I. Skachkov, Frunze: From 1970 to 1985, the sum of deposits by the population in savings banks has increased almost five-fold, and their number has doubled. What is this indicative of, an increase in the standard of living of blue and white collar workers, or the population's unsatisfied demand for goods and services?

Candidate of Economic Sciences A. Yakovlev answers this question.

[Answer] Indeed, it is difficult to find an index that is more dynamic than monetary savings among those which characterize the various aspects of our social development. Judge for yourselves.

Increase in Retail Commodity Turnover, Real Wages of the Population and Deposits by the Population in Savings Banks for the Years 1971-1985 [%]

| Item | 1970 | 1975 | 1980 | 1985 |
|---|---|---|---|---|
| Retail commodity turnover | 100 | 136 | 169 | 196 |
| Real wages | 100 | 124 | 146 | 162 |
| Deposits in savings banks | 100 | 195 | 336 | 474 |

First of all let us clarify the motivations white and blue collar workers have for accumulating large amounts of money. According to the analyses of specialists, which are based on surveys of the population, 40-45 percent of all the savings of Soviet families are intended for the purchase of durable goods, such as furniture suites, rugs, expensive television sets, cars, etc.

Approximately 10-15 percent of the deposits are accumulated for the building and purchase of housing and 5-8 percent for recreational pursuits. The rest of the savings is intended for support of one's children, ensuring material well-being in old age, unforeseen expenses, etc.

What are the motives for saving money in capitalist countries? For example,

according to data from surveys in the Federal Republic of Germany, 48 percent of those surveyed cited the main reason for saving as accumulating reserves for unforeseen circumstances; 32 percent cited the purchase of durable goods and valuables; 27 percent security in old age; 24 percent vacations; 17 percent the purchase of housing ; 14 percent for the future of their children.

It is a well-known fact that under socialism the need for savings in order to ensure security during old age is greatly diminished. Old-age pensions in the USSR are usually set at amounts exceeding 50-55 percent of the wage. At the same time, according to the data of the International Association of Social Security, the correlation between the average amounts of old-age pensions and the average wage is 16.9 percent in Great Britain, 20 percent in France, 22.7 percent in Denmark, 25.2 percent in Norway and 25.6 percent in Finland.

Saving for unforeseen expenses also has a different social meaning under socialism and capitalism.

In the capitalist world, it is a type of insurance fund in the event of such social misfortunes as unemployment, illness, etc. As was noted in the press in the FRG, "he who displays foresight by being concerned about himself and his family, will not be a burden on society if the vicissitudes of life at some time place him in an unforeseen situation."

The rapid increase in monetary savings by the population in our country is a perfectly natural process which reflects the increase in national well-being at this particular stage. Proof of this is the fact that in recent years, for example, the rate at which Soviet families have acquired televisions, radios, refrigerators, cars, motorcycles and furniture has increased rapidly. In retail commodity turnover, the percentage of cultural, personal and domestic goods has increased from 11.3 percent in 1970 to 17.5 percent in 1984. In many cases, their purchase requires that the necessary money be saved.

It is important to mention a point which, although not the main one, nevertheless has an effect on the rapid increase of savings in the form of deposits in savings banks in recent years. It is connected with the convenient arrangements for paying for housing and municipal services and for purchasing goods by means of noncash transactions. The gradual transition toward depositing wages directly into the savings banks has also contributed to the increase in savings.

However, it is of course impossible to deny the fact that some of this money is being saved due to an inadequate supply of goods in demand and an unsatisfactory level of development in the system of paid services. The main reasons for the emergence of unsatisfied demand are that there is a lag in wage increases in comparison with the productivity of labor and the production of high-quality goods is sluggish.

In order to eliminate this situation the present five-year plan has been set the task of ensuring an accelerated pace in the increase of retail commodity turnover in comparison with the wages of the population. Thus, in correspondence with the State Five-Year Plan for the development of the

national economy, it is intended to increase the average monthly wage of blue and white collar workers by 15 percent and the wages of kolkhoz workers by an average of 18 percent, at the same time the retail commodity turnover (excluding wine and vodka) is to increase more than 30 percent. The implementation of measures to increase the responsibility of enterprises which produce consumer goods for the variety and quality of the products they produce is also planned.

At present, top priority is being given to the demands of consumers. Renovation of light industry is another step in this direction. In a recently adopted decree by the CPSU Central Committee and USSR Council of Ministers "On the Improvement of the Planning, Economic Stimulation and Sophistication of the Management of the Production of Consumer Goods in the Light Industry", it is directly stated that enterprises' plans should be formulated on the basis of agreements with trade organizations which, in turn, are obliged to make their orders correspond to the real demand of the population. Growing consumer demand will also be satisfied through the implementation of the Comprehensive Program for the Development of the Production of Consumer Goods and Services.

12793
CSO: 1827/2

ELECTRIC POWER GENERATION

TASS: KAMCHATKA GEOTHERMAL POWER STATION BEING BUILT

LD201122 Moscow TASS in English 0939 GMT 20 Oct 86

[Text] Moscow, 20 Oct (TASS)--Preparations for the construction of a geothermal power station began in a Geyser valley near the Mutnovskiy volcano in the Kamchatka peninsula, the Soviet far east.

TASS was told by the Ministry of Power Engineering and Electrification of the USSR that it would be the second geothermal power plant in the peninsula. The first, the Pauzhetskaya station with a capacity of 11 megawatt, was built about two dozen years ago. Though small, it gave Soviet specialists an opportunity to accumulate some experience in the commercial utilization of subterranean heat and this experience is now being applied in designing new geothermal power stations for various parts of the Soviet Union. The Mutnovskiy project will be the largest. Its capacity is roughly 200 megawatt. The station will use subterranean water heated by the volcano to 200 degrees centigrade. The first wells sunk in the valley indicate that this water lies at a depth of more than one kilometer.

The project will be very profitable. It will meet all the needs of the industry and population of Kamchatka in power and hot water will be supplied by pipelines to Petropavlovsk-Kamchatskiy and other population centers and deep homes, swimming pools and hothouses warm. The station will make it possible to save 400,000 tons of reference fuel a year--and fuel is shipped to the peninsula from other parts of the country.

Guidelines for the economic and social development of the USSR in the long term attach more importance to the development of a system of power stations relying on renewable power sources,including subterranean heat. Several geothermal power stations will be built in the northern Caucasus and the Ukraine.

/9738
CSO: 1822/028

CONSERVATION EFFORTS

NEED TO SAVE RESOURCES, RECYCLING EMPHASIZED

AU200944 Kiev PRAVDA UKRAINY in Russian 10 Oct 86 p 1

[Editorial: "Searching for Reserves for Economy"]

[Excerpts] There is now no need to demonstrate that it is necessary to economize everywhere and on everything. Experience and calculations show: It is much more advantageous to save, to recycle than to extract new raw materials, to produce heat or electric energy. In this way, the economy of resources turns into a major source to meet the growing needs for raw and other materials. This is why the 5-year targets for the economy of resources, particularly of fuel and energy, exceed by 1.5-2 times the indexes for the last 5- year period.

To search for and to find reserves for saving resources--this is what each labor collective, each toiler needs. This is the task: if one does not save, it means one acts in a slipshod manner and runs into debt before the state, before one's own conscience.

Reserves are everywhere, and there is no need to go very far, one only has to have a more careful look around. As it turns out, common waste products are a very economical kind of fuel: In the language of specialists, the abbreviation SDW--solid domestic waste [TBO--tverdyye bytovyye otkhody]. Well, SDW supplies are inexhaustible, and the heat-generating capacity of waste if close to that of lignite, schist, and peat.

A number of the republic's cities are now building, or planning to build, waste burning plants. Their usefulness is unquestionable, and evidence of this is the Crimean plant for the thermal processing of SDW, which burns waste from Sevastopol, Yalta, Alushta, and other southern cities. Last winter the enterprise supplied 22,000 gigacalories to heat Sevastopol. A common boiler needs 3 million cubic meters of natural gas to produce such an amount of energy.

If you look for something, you will find it. This seems to be true. Nothing happens of its own accord. This is obvious, too. But in business there are quite a few slip-ups [probuksovki]. Just like always, correct and passionate speeches about economy and thrift are being delivered here and there, to loud acclaim. But to be on the safe side, no price is too high to fulfill the plan.

It is essential to introduce the rule: When outlays are too high and prime production costs rise, even an overfulfilled plan must not be accepted, and the work must be considered as unsatisfactory with all the consequences following from it. After all, when the production of some items "eat up" more than allowed, the situation must not be regarded as normal. It is close to economic insolvency.

Wastefulness is intolerable. And all efforts of party, administrative, trade union organizations, and labor collectives, as well as scientific and technological policy, planning, economic and administrative levers have to be aimed at fighting it as a deep-rooted vice.

/9738
CSO: 1822/027

## OFFICIAL ON UPCOMING RESTRUCTURING OF WORKERS' WAGE RATES

Moscow TRUD in Russian 30 Aug 86 p 2

[Interview with V. I. Shcherbakov, chief of the Department of Wages, member of the USSR State Committee for Labor and Social Problems, by V. Golovachev, TRUD correspondent: "To Each According to Labor"; date and place not specified]

> [Text] The other day the Politburo of the CPSU Central Committee examined measures to improve wage organization and to introduce new wage rates and salaries for workers in production sectors of the national economy. V. Golovachev, TRUD correspondent, asked V. I. Shcherbakov, chief of the Department of Wages, member of the USSR State Committee for Labor and Social Problems, to discuss this at greater length.

[Question] Vladimir Ivanovich, first of all, what necessitates this restructuring?

[Answer] Currently applied wage systems were formed quite a long time ago and in many respects no longer meet the increased demands. In the last few years there has been a rise in wage rates, but this has affected mainly low-paid categories of workers. In this connection the differences in the wages of low and highly skilled workers have decreased. Today the wage rate of a sixth-category worker in a number of sectors is only 1.5 times higher than that of a novice who is in the first category.

The rate part makes up from 50 to 60 percent of the average wages. This means that it is possible to attain an increase in earnings without a rise in the skill category, which, naturally, has a serious effect on the quality of output and labor.

Ratios in the wages of workers and engineering and technical personnel have worsened significantly. The growth rates of average wages of foremen and engineering and technical personnel in virtually all sectors of machine building, the construction materials industry, and a number of others lag behind the rates of growth of workers' average wages. In some sectors the average wages of engineering and technical personnel have become even lower than those of workers.

[Question] However, disproportions have also appeared in the earnings of different categories of workers.

[Answer] Yes, for example, the growth rates of the wages of piece-rate workers have significantly outstripped the growth rates of the wages of hourly workers.

The low level of wage rates and salaries has weakened the stimulating role of the entire wage system. Many bonuses have been transformed into a wage regulator and are used as permanent wage components.

There is no clear dependence of the wage level on the intensity of labor.

These and many other shortcomings in labor organization and wages were noted at the 27th CPSU Congress and the June (1986) Plenum of the CPSU Central Committee. Congress decisions envisage significantly strengthening the connection between wages and labor results and making wages truly earned.

[Question] What are the characteristics of the present restructuring of the wage system?

[Answer] The chief thing is that wage rates and salaries should be raised on a fundamentally new basis--through an improvement in the economic activity of labor collectives and the funds earned by them in close connection with a refinement in the economic mechanism and a changeover to full cost accounting and self-financing. During the introduction of new conditions it is planned to accomplish a number of major tasks; first of all, to increase the material interest of collectives and individual workers in fulfilling and overfulfilling the assignments of the five-year plan and in significantly accelerating the growth rates of labor productivity and the quality of output.

The wage fund and, if necessary, a part of the material incentive fund are the sources of capital for the introduction of new rate conditions.

[Question] How can wage fund savings be attained?

[Answer] This capital should be accumulated by an enterprise, association, and organization through the introduction of advanced equipment and progressive technology, refinement of labor and production organization, a significant improvement in standardization, simplification of the structure of management and on this basis a cut in personnel, additional output, and so forth.

New rates and salaries can be introduced immediately for the entire collective, or for individual structural subdivisions and categories of workers, but, and this is the chief thing, as capital accumulates.

[Question] Let us assume that the plant already has capital. Who will give it permission to introduce new rates and salaries?

[Answer] The ministry. After an all-around check of the accounts of associations and enterprises it should approve the schedules for the implementation of this measure in the sector. However, the specific dates for the beginning of a rise in rates and salaries will be determined by enterprise management in coordination with the trade-union committee and with due regard for the opinion of the labor collective.

Standards of formation of the wage fund that will be stable throughout the years of the five-year plan are being established for all associations, enterprises, and organizations of production sectors as of 1987. All the capital earned on this basis is allocated for a rise in rates and salaries. I would like to stress that the standards are stable and will not change. Therefore, enterprises need not be afraid of their revision depending on the attained higher "base."

[Question] Specifically, by how much are wage rates increased?

[Answer] For workers they are increased by an average of 20 to 25 percent. Salaries for managers, specialists, and employees are increased by 30 to 35 percent.

This provides an advantage to sectors determining scientific and technical progress, primarily in ferrous and nonferrous metallurgy, machine building, the construction sphere, and a number of other sectors.

Wage rates for highly skilled workers in light industry and the food industry are to be brought closer to processing sectors in heavy industry.

In construction, taking working conditions and the characteristics of work into consideration, it is planned to raise wage rates somewhat higher than, on the average, in other sectors.

The level of wage rates for the most skilled workers will be higher. The ratio between the rates of lower and higher categories increases (no less than 1:1.8).

In machine building for workers engaged in the adjustment, repair, and servicing of especially complex equipment (processing centers, program-controlled machine tools, and automatic lines) very big changes are being made in wages. Special rates, which are 40 to 45 percent higher than those presently in effect, are being introduced. Furthermore, seventh and eighth categories are being established. Here the ratio between the rates of lower and higher categories is 1:2.

As noted, for engineering and technical personnel--managers and specialists--salaries will rise by 30 to 35 percent and for leading categories--designers, technologists, and foremen--by 40 to 45 percent. It is fundamentally important that skill categories will be established for all specialists. For example, instead of the two presently existing posts of "engineer" and "senior engineer," there will be four skill categories, that is, engineer, second-category engineer, first-category engineer, and chief engineer. The wages of

an engineer or another specialist will now be directly connected with his real skills, quality of work, independence, and creativity.

At the same time, better opportunities for an improvement of the occupational skills of engineering and technical workers are being created. To pay for a specific contribution, for a job done, not for the post, is the main principle. For this the range of maximum and minimum salaries increases significantly. If, for example, previously an engineer at enterprises producing especially complex products could receive from 115 to 150 rubles, now his salary (without taking a category into account) can be 140 to 190 rubles. If a category is conferred, then, for example, a designer or a technologist, as a result of an improvement of occupational skills and competence alone, will be able to obtain a salary increase of 140 to 260 rubles. Furthermore, salary increments--for high achievements in labor, or for the performance of responsible jobs--at the rate of up to 50 percent of the salary can be applied. Therefore, for a designer or a technologist who works well, the rate part of the earnings can amount to 390 rubles.

[Question] What can be said about foremen in this respect?

[Answer] According to the scheme presently in effect, a foreman can have a salary of 120 to 155 rubles, whereas according to the new system, of 160 to 220. When the first category is conferred, his salary increases by 20 percent. When a foreman attains high labor results, an increase of up to 50 percent of the salary can be established for him. To be sure, such measures should contribute to the enlistment of highly skilled specialists full of initiative.

The further enhancement of the role of certification during an evaluation of the labor efficiency of engineering and technical personnel is envisaged. Managers of associations and enterprises jointly with trade-union committees are given the right on the basis of certification to make a decision not only about a rise in a post and the establishment of increments, but also to lower salaries for individual workers, to reduce or cancel increments, and, when necessary, to relieve a worker of the post held.

I would like to stress once again: A real expansion of economic independence is inseparably connected with an increase in responsibility for the results of management. The funds necessary for the introduction of rates and salaries should be found through the mobilization of internal enterprise resources.

And another thing. Salaries for managers will be raised last, after new rates and salaries for workers of other categories are introduced. On the whole, however, the rise in rates and salaries concerns 75 million people.

An outstripping ratio of the rates of labor productivity growth as compared with the growth of wages should be ensured during the period of introduction of new wage rates and salaries. Overexpenditure is subject to a mandatory reimbursement in accordance with the established procedure. Control over this has been entrusted to ministries and departments, as well as to bodies of the USSR Ministry of Finance and the USSR State Bank.

[Question] Wage restructuring stimulates the performance of work by a smaller number of people. Where will those "released" personnel go?

[Answer] As is well known, there is no unemployment in our country--manpower is needed everywhere. It is only important to utilize it most efficiently. Therefore, personnel retraining will be practiced widely. Workers will be redistributed in a planned manner.

Of course, they should be employed primarily at the same enterprises for an additional expansion of production. The problem of work organization during the second and third shift is now especially severe. A personnel reserve is needed for this. The introduction of new wage rates and the cut in personnel connected with this provide a real possibility for solving of this problem. In an extreme case, if there is no place at an enterprise, the job placement office will find a suitable job, possibly in other sectors, including the service sphere. As the experience of the Belorussian railroad showed, about one-half of the released workers were of pension age. Therefore, a part of the people most likely will retire on pensions.

[Question] What is the role of labor collectives and trade unions in all this work on wage restructuring?

[Answer] Very important. Let us begin with the fact that all measures were developed with the most active and direct participation of trade unions. Numerous suggestions by labor collectives and opinions of workers, employees, and trade-union activists were taken into consideration. The draft decree of the CPSU Central Committee, the USSR Council of Ministers, and the All-Union Central Trade Union Council was discussed in more than 150 collectives. Thousands of people participated in the discussion. Now the most complicated thing is ahead--to implement these measures. The first question: Where to find the resources to increase labor productivity and decrease production costs? After all, without this there will be no funds for new rates and salaries. Trade-union organizations are called upon to contribute to an active discussion of these problems in labor collectives and to see to it that not a single valuable proposal remains unexamined and that all potentials are activated.

A significant expansion of the rights of labor collectives is envisaged. For example, in coordination with the trade-union committee and with due regard for the opinion of the labor collective, the director will have the right to introduce additional payments at the rate of up to 24 percent of the wage rate (salary) for workers, specialists, and employees for working conditions; in machine building and light industry, to establish additional payments at the rate of up to 12 percent of the wage rate for workers for labor intensity. Increments for occupational skills, as well as a rise of up to 20 percent in piece rates during work according to sectorial, intersectorial, and other advanced norms, are permitted. The plant itself can make a decision on many other types of incentives.

It is fundamentally important to note that it is permitted to pool all the capital for the award of bonuses in one fund. The collective itself now determines how to spend it and on what. The maximum amount of a bonus for the

entire collective is established in a centralized manner. The amount of a bonus for one worker is not limited. A bonus credited to the collective on the basis of its work results is distributed by the collective itself depending on the labor contribution of each worker.

Finally, who if not trade unions are called upon to see to it that during the implementation of measures, the principle of social justice--to each according to his labor--is observed to the maximum degree. Fundamental wage restructuring, which will be implemented during this five-year plan, is directed precisely at this.

11439
CSO: 1828/141

STATISTICS ON SECONDARY, HIGHER EDUCATION

Moscow VESTNIK STATISTIKI in Russian No 10, 1986 pp 47-51

[Unattributed article under rubric: "Aid to the Agitator and Propagandist"]

[Excerpt] Number of Persons With Higher, Secondary Education
(General, Specialized)
(in thousands)

| 1. Годы | 2. Число лиц, получивших высшее образование | 3. Число лиц, получивших среднее (общее и специальное) образование |
|---|---|---|
| 4. Всего за 1918—1985 | 20 688 | 111 865 |
| 1940 | 126 | 590 |
| 1960 | 348 | 1 263 |
| 1970 | 631 | 3 207 |
| 1980 | 817 | 5 069 |
| 1985 | 859 | 4 426 |

Key: a. Years
b. Number of persons with higher education
c. Number of persons with secondary education (general, specialized)
d. Total number for 1918-1985

During the period 1918-1985,111.9 million people received a secondary education (general, specialized). Out of that number, 86.6 million persons completed general secondary schools; 19.3 million finished technical schools and other secondary specialized educational institutions--accepted after finishing incomplete secondary school (comprising 7 years' schooling)--and 6.0 million finished secondary professional technical schools.

In our country general secondary education is compulsory for young people. The 27th Party Congress has set the task for creating a single system of continuous education. With these aims, general education and professional school reform is being consistently realized. The need to implement the reorganization of higher and specialized education as well as to improve training of specialists and their use in industry is being determined. The plan to raise qualifications and to provide additional training for workers and economic specialists will be carried out in accordance with current demands.

/9738
CSO: 1828/22

# DEPUTY MINISTER ON RSFSR MOTOR TRANSPORT ECONOMIC EXPERIMENT

Moscow AVTOMOBILNYY TRANSPORT in Russian No 8, Aug 86 pp 1-3

[Article by A. Vasilyev, RSFSR deputy minister of motor vehicle transport: "From an Experiment--to Everyday Operations"]

[Text] Our party and the entire Soviet nation are linking the solution to many vitally important problems in accelerating the country's socio-economic development with the 12th Five-Year Plan.

The continuing search for ways to increase work effectiveness and quality and to improve management of the economy is a special feature of this five-year plan. In accordance with the conditions of the experiment being conducted in many branches, a significantly-increased role is assigned to the indicators for volume of products sold, taking into consideration the fulfillment of contracted obligations. Measures have been taken to make this indicator a most important one for the collectives. Enterprises were to have achieved all production growth exclusively by virtue of growth of labor productivity, without increasing the number of workers. At the same time the capabilities of the enterprises have been expanded in providing material incentives for labor, and in technical retooling and reconstruction by means of their own assets. The influence of the new economic mechanism has been increased on accelerating scientific-technical progress and its influence on growth of labor productivity.

The economic experiment begun in 1984 in motor vehicle transport had the goal of improving the system for paying the drivers. In order to do this it was necessary to increase their material interest in more effective use of equipment, in increasing productivity, and in improving services to passengers and enterprises in the national economy. This stage required disclosing the actual volumes of freight transfer necessary, and doing away with exaggeration of figures. The results were reassuring: the distances traveled by the vehicles declined, and at the very same time there were fewer complaints from those who use transport services. Fuel consumption was reduced; moreover, this was achieved not only on paper but was a real saving.

The CPSU Central Committee and USSR Council of Ministers have deemed it necessary to expand the use of new methods of management designed to increase work quality and create genuine material interest among the working collectives. Achieving this envisages the active use of the capabilities of

planning, incentives, price formation, and other economic levers. In accordance with the decree of the CPSU Central Committee and USSR Council of Ministers of 12 July 1985, "On Widespread Use of New Management Methods and Increasing their Influence on Accelerating Scientific-Technical Progress," a number of practical measures were taken, and a number of motor transport ministries and associations were switched to the new management methods, taking into consideration the specific features of our branch. Among these are five territorial associations: Gorkiyavtotrans [Gorkiy Motor Transport Association], Gorkiypassazhiravtotrans [Gorkiy Passenger Motor Transport Association], Mosoblpassazhiravtotrans [Moscow Oblast Passenger Motor Transport Association], Bryanskavtotrans [Bryansk Motor Transport Association], and Kurganovtotrans [Kurgan Motor Transport Association]. These are major economic complexes, which serve the needs of the national economy for freight and passenger transportation.

In switching to the new management methods, the experience of the 1984 economic experiment was taken into consideration. A thorough study was made of the work experience of the industrial ministries under conditions of the new planning system, as well as the methodical instructions for switching industrial associations to the new management system. The basic principles of this system, taking into consideration the specific features of the branch, formed the basis for the regulation on the new management mechanism for motor transport.

In switching the five territorial associations of the RSFSR Ministry of Motor Transport over to the new conditions on 1 January 1986, all the positive elements of the management mechanism consolidated in the experiment received further development.

The physical index--the volume of shipments in tons by ministries, by departments, and by freight shippers, in accordance with contracted agreements--is becoming the basic indicator for planning and evaluation under the new management system. Material incentives and additional allottments or deductions to the material incentive fund have been made directly dependent upon complete and timely fulfillment of contracted obligations to the clintele.

For fulfilling contracted obligations to the clientele, the motor transport associations will increase their material incentive fund by 15 percent; but for non-fulfillment, they will lose 3.0 percent of this fund for every percentage point of non-fulfillment. A significant portion of the bonus money for the managers depends upon this indicator.

Other important features of the new management method established in the five-year plan are the economic normatives for wages paid per revenues received, and normatives for making up the incentive funds and funds for developing production. The annual plan of a motor transport association establishes the normative for the amount of profits to be deducted for the state budget.

Establishing the economic normatives expands the rights of the motor transport associations in planning and increases their responsibility for the end results of their work. The associations acquire greater economic

interest in accepting more intensive planned tasks for increasing labor productivity, in reducing expenses per ruble of revenue received, and in fulfilling the plan for profits.

The conditions of the new management system stipulate increasing the associations' responsibility to the budget. If an association fails to fulfil its planned profits by up to 2.0 percent, it will still be liable to the state budget for the full amount; that is, that part of the budget intended for its own use will be reduced, as will the amount for material incentives.

Moreover, an additional payment to the budget has been introduced, amounting to 3.0 percent of the cost of above-normal stocks of valuable goods and materials not authorized by the bank, and for uninstalled equipment.

The rights of the motor transport associations for use of wage funds have been expanded. The associations have been granted the capability of establishing supplementary payments to highly-skilled workers, engineering and technical workers and white-collar workers, by virtue of savings in the wage fund. When the normative for wage payment per ruble of revenue received is stable, this creates an economic interest in achieving growth in volume of shipments by virtue of increasing labor productivity and reducing the number of workers. Here an important role is played by brigades operating on a self-supporting basis in determining the contribution for KTU [labor participation rate].

A third positive aspect is the expansion of the rights of the associations in using their own assets (the production development fund) for technical retooling and reconstruction of enterprises, as well as for construction of housing, children's institutions, vacation hotels, and other projects of a non-production nature.

For purposes of expanding the economic independence of the territorial associations and for intensifying economic methods of management of subordinate enterprises, reserves and centralized funds will be established at the territorial motor transport associations for financing, for wages, and for incentive funds. Unused funds will remain for the succeeding period.

It should be noted that the enterprises have begun to accept higher planning indicators even at the plan development stage. The territorial motor transport associations which were switched to the new management conditions have accepted for 1986 and for the 12th Five-Year Plan as a whole higher planned indicators (in comparable conditions, costs and rates) in comparison with the 11th Five Year Plan. Thus, Gorkiypassazhiravtotrans and Mosoblpassazhiravtotrans, which in the 11th Five-Year Plan had permitted significantly excessive losses, plan to reduce them by 25-30 percent in the 12th Five-Year Plan.

For the 12th Five-Year Plan the volume of freight transfer in tons for the Gorkiyavtotrans, Bryanskavtotrans and Kurganavtotrans territorial associations will increase by 33-40 percent, with growth for the sector at 33 percent, and labor productivity by 18-22 percent.

The ministry has created a commission to conduct the necessary preparatory work and to monitor the introduction of the new management system. Methodological instructions for transferring individual associations to the new management system and a standard regulation for awarding bonuses to workers at territorial and production associations have been drawn up and issued to the territorial associations. These instructions are in effect today and normatives are to be worked out on their basis for each territorial association and motor transport enterprise.

The initial results of operations under the new management conditions at the five territorial associations are reassuring. They indicate that the motor transport enterprises have been able to significantly improve their work. All five territorial associations have fulfilled the plan for the first quarter of 1986 for freight and passenger transport, and have assured 100 percent fulfillment of the plan for freight transfers by ministries and freight dispatching departments. Volume increases in tons for the first quarter amounted to 119, 118.4, and 116 percent, respectively, at Gorkiyavtotrans, Bryanskavtotrans and Kurganavtotrans, basically by virtue of growth in labor productivity. Plans for revenues and profits were fulfilled. Savings in the wage fund in accordance with the established norms permitted the managers of the territorial associations to supplement the wages of the associations' adinistrators and engineering-technical workers by up to 50 percent, while ensuring growth rates for labor productivity.

The new working conditions afford the possibility, in view of turning down limiting appropriations, to have only the wage fund for engineering-technical workers and white-collar workers as a percentage of the overall wage fund.

However, in order to fulfill the volumes of contracted shipments and to increase labor productivity, it is necessary to make intensive improvements in using the pool of vehicles and trailers, to develop container and packet shipments, and to organize effective operation of large-capacity vehicles and dump trucks. In the 12th Five-Year Plan the number of trucks on-line must be brought up to 80-85 percent, trailers up to 70 percent, and buses up to no less than 80 percent; and the volume of centralized freight shipments must be significantly increased.

The experience of the territorial associations also revealed shortfalls.

Increased volume of transport operations by virtue of growth in labor productivity should be based on introduction of new equipment and advanced technology. The territorial associations have not completely worked out these conditions. The experience of the Bryansk motor transport workers in working out and developing shipments on an organizational-operational basis are not yet being sufficiently utilized.

The most important factor in organizing the work of the drivers and repairmen in the new manner is the spread of collective forms of labor, and above all the brigade contract with its collective responsibility for the end results of the work. Thus far only 30 percent of the workers are working

under this progressive method, although it makes it possible to increase labor productivity by 8-10 percent. In this great work, improving the brigade form of labor organization for drivers and repairmen must become the basis of the work of the administrators at the enterprises and associations in putting every contract brigade on a self-supporting basis, and defining the necessary normative base. Here the proper form of labor organization must be displayed--such that every brigade has a supervisor and engineering-technical workers, and that each brigade has engineering support and engineering knowledge.

Without a doubt the basis for intelligent, well-founded planning is determining the needs of the national economy and the populace of the region for transport, on the basis of balanced transportation. But the subsequent planning stages--balancing the requirement for transportation with the capabilities of the motor transport enterprises and working out a production program--also require fundamental improvements in planning work.

Under the conditions of the new system of management territorial motor transport associations and enterprises make additional payments to the budget for having above-normal reserves of valuable goods and materials not authorized by the bank and for non-installed equipment. This places a special responsibility on us: first of all for properly establishing the norms for working capital; and secondly, for justified, balanced acquisition of valuable goods and materials under the planned production program.

The basic task for 1986 consists of preparing proposals based on analysis of the new operating conditions at Gorkiyavtotrans, Gorkiypassazhiravtotrans, Mosoblpassazhiravtotrans, Bryanskavtotrans, and Kurganavtotrans, for switching all branches over to the new management conditions in 1987. In this connection, the Scientific Research Institute for Motor Transport, together with the corresponding units subordinate to the ministry must work out in the shortest possible time a methodology for analysis of the results of the operations of these territorial associations under the new management system, as well as methodological instructions for transferring the industrial, domestic, planning, scientific and other organizations of the ministry to the new management system.

In order to derive the necessary results from the transformation of the management methods, the efforts of the administrators, the party and trade union organizations must be united and directed toward a single goal. The new conditions themselves are only the prerequisite which permit us to work better. Successfully implemeting them depends largely on how every person taking part in collective labor--from the worker to the supervisor--grasps, believes in and learns to use the new and broader capabilities.

The goal is clear: the associations and enterprises must work better under the new conditions; and they must increase labor productivity and quality of production on the basis of accelerating scientific-technical progress.

Preparing to transfer the branch to the new management conditions by 1 January 1987 requires methodically developing the necessary instructive and normative documentation which will regulate the work of the associations and enterprises in the new conditions. The management system must be improved. Basic indicators which take into consideration the new conditions have been worked up and issued to the associations and enterprises, both for the five year plan and for each individual year. The enterprises are developing plans for production, for the material incentive funds and for development, in accordance with these indicators.

The cadres must also be trained in acordance with a specially-recommended program. Such training should be organized in each territorial association on the facilities of higher educational institutions, tekhnikums and train ing combines.

Any indicators and normatives, no matter how carefully they have been worked up, will provide very little if they are not brought to the attention of all the workers, or if they are not understood and accepted at the level where they are to be carried out.

Currently it is very important to provide timely training to the collectives of motor vehicle transport enterprises for work under the new economic conditions. In order to ensure systematic, timely and qualitative fulfillment of this work, commissions and plans for measures to train the collectives must be consolidated in every territorial association and at the enterprises.

Careful study of the methodological regulations must be made in the brigades, and measures must be worked out at each enterprise. By means of these organizational-technical measures, problems will be solved for full and qualitative satisfaction of needs for transport on the basis of the normative base worked out.

In order to conduct this work in a timely and qualitative manner, every enterprise must be assigned responsible officials from among the supervisors of the territorial associations, or the corresponding services and departments, and engineers must be assigned to every brigade. Prior to 1 December technical measures must be worked out at every enterprise and territorial association, guaranteeing unconditional fulfillment of the volume, financial and social plans. These measures must be grounded on extensive introduction of the newest technical and organizational measures, which will provide for significant growth in labor productivity and the quality of transport operations. For the current five-year plan the branch has been assigned great and responsibile tasks: to increase the growth in the volume of freight shipments by 33 percent and passenger movement by 18 percent. All the growth must be provided by virtue of growth in labor productivity. Therefore the measures worked out must be utilized today in transport operations.

Our branch has entered the 12th Five-Year Plan on the basis of transferring to the new system of management. The path to this goal is always complex, and we must analyze our every step, and rid ourselves along the way of the

inertia of old perceptions and methods of management. A great deal remains to be done in order that, with the help of economic measures, we might achieve maximum reduction of losses to the national economy from motor transport. To do this we must improve even further the economic indices of our work, analyze the experience of the use of intensive methods, and seriously comprehend the successes and shortfalls in the initial results of the work by the new methods.

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## CITY BUS SERVICE SUFFERS; VEHICLES DIVERTED FOR HARVEST WORK

Moscow PRAVDA in Russian 18 Aug 86 p 2

[Article by M. Buzhkevich under the rubric "A Rejoinder": "The Bus Drove Off..."]

> [Text] A call came in to the editors the other day from Omsk. An angry reader related: "The buses have been running worse in recent weeks. You wait and wait, then finally give up and head off on foot. And if you wait till it comes, you can't always squeeze inside--it's packed full. And this is in summer when the roads are normal and not icy."

Judging from the letters, this is not the situation in Omsk alone. The residents of Sverdlovsk, Kuybyshev, Voronezh, Leningrad and other cities are complaining about the increasing frequency of interruptions in passenger transport operations. The RSFSR Minavtotrans [Ministry of Motor Transport] has explained that a large portion of the buses are being diverted from passenger transport. In Omsk itself, up to 220 vehicles did not go out on the lines in the last two weeks of July--they were occupied with agricultural work. That is why there are large traffic intervals on urban routes and a crush inside the vehicles.

This is not the first time the city residents have encountered this phenomenon. Last year the route buses of RSFSR Minavtotrans expended 735,000 vehicle/days transporting workers and office personnel to agricultural work. Some 10 million regular runs were not carried out in cities and towns. As these instances demonstrate, history is repeating itself. And this is notwithstanding the fact that it is forbidden to divert general-use buses from urban routes for other purposes.

The question can be posed: how can it be? People from the city are sent to help the towns in the spring, summer and fall. Don't they have to be transported in something? Of course. Departmental transport should be used for this as widely as possible. The ispolkoms of the local soviets of peoples' deputies, however, manifest a clear awkwardness, and even timidity, in the given instance. It is, after all, easier to give a command to subordinate motor pools to allocate buses than it is to "do battle" with the

directors of major all-union or republic-level industrial enterprises and to insist on the allocation of vehicles that are frequently not even in use.

In Omsk itself the fleet of departmental buses approaches 1,800 vehicles. A few dozen are sent to the country. Departmental vehicles are also not diverted for passenger transport in the city at rush hour, even though a directive on this came out several years ago. By way of example, three enterprises--Glavomskpromstroy [Omsk Industrial Facilities Construction Main Administration], the oblast agricultural industry committee and Sibneftemontazh [Siberian Oil-Facilities Installation Trust]--have about two hundred buses. And not one of these takes part in transporting city residents.

In places where the local soviets are concerned with the interests of the public and improving its transportation service, a way out is being found. Krasnodar Kray can serve as an example, where combined columns of departmental buses are being created to transport city residents to agricultural work. This experience, however, is being disseminated extremely slowly. It is a shame!

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## POSTWAR IZh MOTORCYCLE PRODUCTION FIGURES

Moscow ZA RULEM in Russian No 10, Oct 86 p 8

[Unsigned response to reader inquiry in the "Information Service" column: "How Many IZh Motorcycles and Which Models?"]

[Excerpt] Motorcyclist O. Kolesnichenko from Altay Kray asked us to list all postwar IZh motorcycle models along with the years of production and the number of each model produced. We turned for the information to the Izhmash Association. Below are the figures as of 1 January 1986:

| Model | Years of Production | Units Produced |
|---|---|---|
| 350 | 1946-1951 | 127,090 |
| 49 | 1951-1958 | 507,603 |
| 56 | 1955-1962 | 677,428 |
| Yupiter | 1961-1966 | 447,747 |
| Planeta | 1962-1967 | 405,303 |
| Planeta-2 | 1965-1971 | 246,486 |
| Yupiter-2 | 1965-1971 | 766,487 |
| Planeta-3 | 1970-1977 | 478,496 |
| Yupiter-3 | 1971-1977 | 296,711 |
| Planeta-Sport | 1973-1984 | 215,210 |
| Planeta-3-01 | 1977-1981 | 400,842 |
| Planeta-3-02 | 1981-1985 | 216,101 |
| Yupiter-3-01 | 1977-1980 | 471,246 |
| Yupiter-3-02 | 1979-1981 | 254,316 |
| Planeta-4 | 1983-present | 167,092 |
| Yupiter-4 | 1982-present | 1,068,678 |
| Yupiter-5 | 1985-present | 213,179 |

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# CHARACTERISTICS OF NEW ZIL-4331 TRUCK

Moscow AVTOMOBILNYY TRANSPORT in Russian No 7, Jul 86 pp 40-42

[Article by V.K. Koshkin, chief designer of the Moscow Motor Vehicle Plant imeni I.A. Likhachev: "The New ZIL-4331 Diesel Truck"]

[Text] Specialists had an opportunity to become familiar with the ZIL-4331 truck at an exhibit dedicated to the 60th anniversary of Soviet motor vehicle building.

The ZIL-4331 is the base model of a new family of ZIL vehicles. Externally, this vehicle looks nothing like its predecessors.

In creating a new model, the designers sought to make it highly efficient, making it possible to reduce the cost of shipments. They set themselves the task of improving the vehicle's operating qualities, increasing its reliability and durability, and achieving ease of control and simplicity in servicing, and a high degree of active and passive safety. In the 12th Five-Year Plan the ZIL-workers plan to increase output of ZIL-4331 trucks.

In the article below, V.K. Koshkin, chief designer of the Moscow Motor Vehicle Plant imeni I.A. Likhachev, familiarizes readers with the new truck's design characteristics.

The new diesel truck base model is the result of many years of work by a large collective of designers and researchers to develop the optimal design variant for the modern vehicle. The basic dimensions of the ZIL-4331 are shown in the diagram and its outward appearance—in the photograph [not included].

The ZIL-4331 has a ZIL-645 diesel developed by the plant's designers. It is a four-stroke V-8 engine with a displacement of 8.74 liters and rated at 136 kW (185 hp) at a crankshaft rotational speed of 2800 $min^{-1}$. The maximum torque is 510 N·m (52 kgf·m) at 1400-1600 $min^{-1}$.

The ZIL-645 engine consumes 30-40 percent less fuel compared to carburetor engines. Its design is noted for its simplicity and ensures convenience of assembly and fairly good access to components requiring periodic servicing.

The ZIL-645 diesel should be more reliable and durable thanks to the more thorough cleaning of the air, oil, and fuel coming into the engine. Replaceable paper elements are used for this. The diesel's combustion chambers with film-volume mixing ensure stable fuel consumption, smooth engine operation, dependable starting, and a low noise level. The new engine's main and crankpin bearings are made of leaded bronze. The hardness of the cylinder block and crankshaft has been increased. The engine will be more reliable thanks to graphite coating of the piston skirts, surfacing of the valve faces, and the use heat- and wear-resistant valve seats.

The ZIL-4331 has a dry, single-disk, linkage clutch with peripheral pressure springs. The clutch drive has an air-over hydraulic booster, decreasing the pedal force to 150 N (15 kgf).

The plant created a new 4-speed mechanical transmission for the ZIL-4331 with a planetary auxiliary gearbox which doubles the number of gears. This type of transmission provides a large range of gear ratios (from 11.4 to 1), the possibility of obtaining an even progression of gears (1.34...1.38), and also the use of a ninth "creeping" gear, which enables the vehicle to operate in tandem with agricultural combines. Such designs make it possible for the driver to select the most favorable speed, traction, and economy modes of vehicle movement.

The transmission has a hatch accommodating a power take-off (power take-off up to 22 kW or 30 hp).

Since the power and torque of the new diesel are greater than the ZIL-130 engine, the ZIL-4331 uses a universal drive shaft with oversized joints. It never requires periodic lubrication.

The truck's drive axles have a single-speed hypoid main drive. They are very quiet. Their design is basically similar to the axles of the ZIL-130 being made today. The gear ratio of the reduction gear is 5.29. The design of the rear axle provides for the possibility of installing a differential lock to improve the traction and clutching qualities of tractor-trailer rigs.

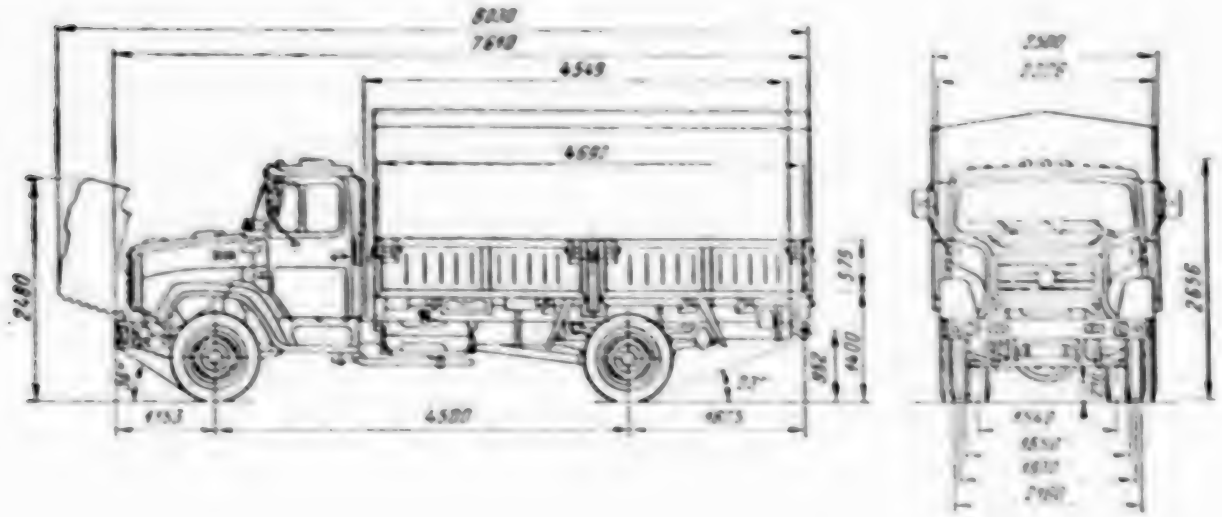
The front and rear suspension design provides the necessary smoothness of ride and increases the durability of its individual components.

The front suspension consists of two longitudinal semi-elliptic springs with dual-action telescopic shock absorbers. The rear suspension has two main longitudinal semi-elliptic springs and two supplementary ones.

Increasing the length of the front, rear main, and supplementary springs made it possible to decrease their stiffness and reduce the number of leaves in the unit. The spring joints are sealed. The spring shackle pins are secured with cotter pins, and the design of the sliding-end pad of the rear spring has been

changed. The suspension brackets are made of sheet steel. This has increased their maintainability.

The front axle is a double-T with a Y-shaped steering knuckle and a rear-positioned steering geometry. The pin assembly is sealed to increase durability.



The steering has a hydraulic booster. The steering mechanism is standardized as much as possible with the similar mechanism of the ZIL-130. Since the load on the ZIL-4331's front axle has increased to 4,000 kgf, to decrease the stress on the steering wheel the operating pressure of the liquid in the hydraulic steering booster has been increased to 110 kg/cm$^2$ (it is 75 kg/cm$^2$ in the ZIL-130). The airtightness of the hydraulic booster mechanism provides relief of the shaft support packing.

The hydraulic booster pump has also standardized to a considerable degree with the ZIL-130's pump. The pump, safety valve, and discharge valve are combined into one assembly with the supply tank and paper filter. The pump stator is coated with titanium nitride. This provides the necessary operating life.

Standardized joints with permanent lubrication are used in the design of the ZIL-4331's steering linkage. The steering column adjusts in angle (25 degrees) and height (45 mm).

The ZIL-4331 is equipped with running, emergency, parking, and auxiliary brakes, and also a braking force regulator. The running brakes are compressed-air brakes with front and rear axle braking mechanisms.

The brake control of the trailer (semitrailer) uses a combined system, permitting operation of trailers (semitrailers) with both single-line and double-line brake linkage.

The rear wheel running brakes are used as the emergency brake, activated by spring-controlled energy accumulators. The emergency brake is pneumatic drive from the reverse-action brake valve with manual control.

The emergency brake is used as the parking brake. It is engaged by turning the reverse-action brake valve to the extreme position. The designers also provided for the possibility of emergency braking of the vehicle's wheels in the event of an absence of air in the braking system.

A throttle valve installed in the diesel's outlet manifolds serves as an auxiliary brake. It has pneumatic drive from a foot valve with a hand throttle control.

The ZIL-4331 uses a mixed electrical equipment system: a 12-volt system for vehicle power (running) and a 24-volt system for starting the engine.

The design of the ZIL-4331's cab provided good access to the power unit during servicing. The truck's headlights were first located on the fenders; now the designers have moved them to the bumper.

The cab is spring-mounted. Soft suspension elements with four shock absorbers are used in its design. The cab is finished with modern molded panels. The driver's seat is also spring-mounted, having a shaped cushion and back.

Efficient heating (5,600 kcal/hr), modern upholstery and decorating materials, the steering wheel with a flush hub, efficient noise insulation, and conveniently located instruments and vehicle controls increase the comfortableness of the cab and reduce driver fatigue.

The truck's body has a metal frame and a sectional panelboard floor with three metal sides that drop down, pressed cross support beams, and longitudinal beams of waterproof veneer. The front side is high. It also serves safety functions: if the vehicle overturns, the cab is not smashed. Some of the trucks will be equipped with a polymer tarpaulin on a metal frame.

The carrying capacity of a tractor-trailer rig consisting of the ZIL-4331 tractor and a trailer is 12-14 tons (the carrying capacity of a ZIL-130 tractor-trailer rig is 11.5 tons). This is made possible by using trailers with a carrying capacity of 6 and 8 tons instead of 5.5 tons. The average speed of the new tractor-trailer rig has also been increased.

The ZIL-4331 tractors operating as a tractor-trailer rig is designed for at least 400,000 km before the first major overhaul during category I operation.

Although the design of the new family of trucks is more complicated (compared to previous models), the labor intensity of maintenance of these trucks is lower than called for by requirements of GOST 21624-81. Thus, test results have shown that the effective labor intensity of maintenance is 1.34 man-hours per 1,000 km.

Simplicity in servicing the trucks is achieved by using replaceable paper filter elements in the design of air, oil, and fuel filters; all-season

coolant (antifreeze); bushings not requiring lubrication throughout the service life; lubrication of rear wheel bearings with oil coming from the rear axle reduction gear box; permanently lubricated roller bearings; a hood substantially improving access to the space under the hood and to the engine; by decreasing the number of grease fittings to 21 (the ZIL-130 has 29) and lubrication points to 32 (the ZIL-130 has 53). However, in preparing for maintenance of the new trucks, motor transport workers will have to do a certain amount of reorganizing work positions at motor transport enterprises.

This is because the new assemblies of the trucks differ substantially from similar assemblies of the ZIL-130 trucks in configuration and weight. They have different attachment points, at the same time determining their centers of gravity. Therefore, the existing equipment at motor transport enterprises must be upgraded. They will need new accessories and pullers for the engine, transmission, cab, and body.

Special attention during training of personnel to work on the new trucks must be given to teaching mechanics the correct methods of performing installation and disassembly operations. Service tests on the ZIL-4331 have shown that the operating efficiency of the new trucks, especially during the break-in period, depends to a considerable extent on the quality of training of these specialists.

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## UAZ WORKS PROBLEMS IN LAGGING PRODUCTION IMPROVEMENTS

Moscow PRAVDA in Russian 7 Aug 86 p 2

[Article by ULYANOVSKAYA PRAVDA contributor V. Kolesov and PRAVDA correspondent V. Orlov, Ulyanovsk: "Won't UAZ Get Bogged Down...--Machine Building--Catalyst of Progress"]

> [Text] Several new vehicles are drawn up in a line on the spacious asphalt surface at the gate of the experimental shop of the Ulyanovsk Motor Vehicle Works [UAZ]. They are distinguished from the UAZ vehicles we are accustomed to first and foremost by their styling and elegant shapes. They are being shown to guests and journalists.

Here, for instance, is an all-terrain vehicle with enhanced cross-country performance. It is not afraid of marshes and rivers, since it can swim. Geologists, petroleum workers and the trailblazers of uninhabited regions have long waited for this vehicle. And this one-and-a-half-ton van will become a faithful aide to vegetable growers and commercial employees. A third vehicle, trimmed with plastic and other modern materials, will undoubtedly enjoy increased demand among drivers.

"They will, of course, be coming off the assembly line in the 12th Five-Year Plan?" we asked Yu. Isayev, general director of the UAZ Production Association.

Yuriy Alekseyevich stumbled with his answer. It turns out that the wonderful all-terrain vehicles are to be produced in a new shop that does not yet exist. Not even on paper. Possibly, a plan alone will be ready this year. Then the shop will have to be built, outfitted with equipment and made such that this equipment operates impeccably.

The one-and-a-half-ton van should be produced with a diesel engine. Right off the bat there is a misunderstanding.

"We have made experimental prototypes of the diesel," related Yu. Isayev, "but we have received many serious complaints. We are now doing it over. I think we will be able to set up production by 1991..."

Well, the third elegant vehicle turned out to be, all in all, a model. There isn't even an experimental prototype. And it is unclear when there will be one.

Is it any wonder that major motor-vehicle association of the country is losing its past honor and is surrendering hard-won positions?

In the offices of plant management and of the party committee, much is heard about the restructuring, about technical retooling, about strengthening the human factor. But what is heard is only slightly corroborated by what is encountered in the shops. Thus, in the 12th Five-Year Plan the Ulyanovsk auto workers will have to increase product output by 21.5 percent. The entire increase in production volume, moreover, is projected to be obtained through growth in labor productivity.

In order to resolve the tasks before them, the auto workers must incorporate no fewer than 1,780 units of new equipment: automatic lines, industrial robots, machine tools with numerical control. But the technical retooling is being conducted too slowly. There are large reserves in improving the utilization of metal. Today almost thirty percent of it now goes to scrap at the plant. In metallurgical and die-welding production, the incorporation of manufacturing processes was undertaken to increase the utilization of rolled ferrous metal at least to the level of the standards. And what has come of this endeavor?

A mechanized line for the assembly welding of motor-vehicle body roofs has stood for three years as a monument to mismanagement. Even though its incorporation would allow an annual saving of more than two hundred tons of metal and reduce the number of employees. An automated cold-heading unit has already sat idle in the automated shop for ten years, the incorporation of which would make possible an annual economy of 240 tons of metal.

Great hopes are placed on the bilateral measures of the plant and ministry developed on the initiative of the Ulyanovsk CPSU Obkom. On the eve of the new five-year plan they were coordinated and approved at all levels. How is what was projected being fulfilled?

The motor-vehicle plant workers first off expressed complaints directed "upward."

"The ministry promised us 46 automated lines for the five-year plan," complained Technical Director I. Tarasov. "But as of today we have seen only ten lines. The rest, they say, can't be found anywhere..."

And what about the auto workers themselves? The successful execution of the reconstruction and plant expansion requires the completion of construction on a press-framing wing 46,000 square meters in area, a third warehouse wing and the execution of a reconfiguration of the shops. The erection of these facilities was entrusted to the recently created Avtoremstroy [Motor-Vehicle Repair Facilities Construction] Trust. The subdivision has not yet, as they say, gotten on its feet.

Passing along the main assembly line, we turned our attention to the fact that at the very height of the work shift, the workers were sitting at tables and... playing checkers.

"Your lunch break?" we inquired of final-assembly section foreman N. Okunev.

"What lunch? There are no bodies."

"Does this happen often?"

"Almost every day we are idle for an hour, maybe more."

As has already been noted, the auto workers intend to achieve the entire increase in product output in the 12th Five-Year Plan through growth in labor productivity. But this is on paper. In reality, it is still inappropriate to speak of any appreciable advances in this area. Last year, for example, the plant's main conveyor belt all in all was idle for more than a hundred shifts.

No particular changes for the better are discernible at the start of the new five years. The main conveyor was inactive for about forty shifts in the first half of the year. The chief cause of the idle time is organizational defects that depend on the production and shop chiefs, foremen and team leaders. The workers hear many appeals from them about the necessity of conserving every minute. But the words are not backed up by deeds.

"Can we really seriously discuss product quality when at the end of every month, we inspectors barely have time to consider vehicles "thrown together" in slapdash fashion?" plant quality-control administration foreman N. Nekrasova asks.

V. Pavlov, chief of the quality-control administration, reported to us that "losses from waste have doubled and already total hundreds of thousands of rubles."

A Quality program, developed and approved by directives and the party committee, formally exists at the enterprise which envisages that no less than 75 percent of the products will have the state sign of quality. This percentage still barely exceeds forty percent.

Such a control for raising the activeness of labor as socialist competition is used poorly. Work on organizing has been pushed off indefinitely by the party committee.

This spring, the following episode began to take shape at the RAPO of Gordishchenskiy Rayon in Penza Oblast. The engineer called one of the plant managers: "In the second quarter you are to get an UAZ vehicle. But you have to send four men to the motor-vehicle plant for about three months. I know it is a busy time, but find them where you have to. Otherwise, as you know, they won't give us the vehicle!"

As became clear, the Ulyanovsk Motor-Vehicle Works has long levied such a "charge" on the majority of its customers. The enterprise management solves

the personnel problem according to the principle "if you want to get a vehicle or spare parts--send us people." And temporary workers drag themselves to the plant from all corners of the country. Over the last five-year plan some 75,000 such people were here.

"And in the first half of this year," the personnel department told us, "more than five thousand temporary employees worked at the plant."

They take them on gladly--they are more compliant when they have to work on days off or on overtime, they do not require housing or a spot in the kindergarten, they do not complain about the working conditions, and questions do not even come up about their wages. And that is just what is needed by managers who have grown accustomed to living one day at a time.

A rebuilding is essential. Under what conditions do the majority of the people work at UAZ? There is dirt at the work stations and break rooms, and it is bleak in the cafeterias.

The enterprise collective is poorly concerned with creating normal living conditions for people. The microrayon of the auto plant is the most neglected in the city. That is why people leave the enterprise.

At the beginning of the year, the oblast newspaper ULYANOVSKAYA PRAVDA took up many of these issues. But they have not yet received an answer for publication from UAZ.

When this material was being prepared, there were many calls to the Ulyanovsk correspondent's office of PRAVDA. The sense of what was said can be reduced to one thing: the managers of the motor-vehicle plant are good people, but they are very shy about being discussed in the press. Maybe it's not worth writing about them?

It seems that it is. Because in recent years both in the ministry and in the oblast, many various decrees were adopted to drag the plant out of its firmly entrenched rut. But UAZ is still spinning its wheels.

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## MINISTER KONAREV CHARTS RAILWAYS MINISTRY FUTURE COURSE

Moscow ZHELEZNODOROZHNYY TRANSPORT in Russian No 8, Aug 86 pp 2-15

[Article by N. S. Konarev, member of the CPSU Central Committee, Minister of Railways: "On a Course of Acceleration and Intensification"; passages enclosed in slant lines printed in boldface]

[Excerpt] New Problems, New Boundaries

The year 1985 taught us much. How easy it is to lose initiative, how difficult it is to to correct a matter after defeat and how it is necessary, having mobilized reserves, to achieve success. We should not forget this lesson, after having drawn the appropriate conclusions from it.

In a period of radical restructuring in all areas of life in our society, of accelerated social and economic development for the country, of improvement in the structure and intensification of production, one must not work in the ways of old. Radical transformations in operational and economic work and in the area of administration are needed. It is necessary to strengthen the material and technical base of rail transport more skilfully, more purposefully; improve the reliability of our work and better utilize equipment; and improve the style and methods of our work in all units of our diversified economy. All of this should be directed toward the resolution of 3 interrelated strategic problems which confront the industry in the 12th Five-Year Plan.

/The first/, which is vitally necessary for the country, /is to insure timely, high-quality and full satisfaction of the needs of the national economy and the populace for transportation, and to increase the economic efficiency of rail transportation operations./

/The second/, significant not only economically, but politically, /is to emerge at the highest levels in the world on the basis of the basic work indicators, above all, inlabor productivity./

And finally, /the third task/, which ensues from the party's course for more and more complete satisfaction of the material and spiritual requirements of the Soviet people, /is to achieve a significant increase in the living standard of railroad workers, maximally utilizing the industry's internal resources./ Here we must procede from the fact that the main and only source of prosperity

is highly productive, creative labor. In short, one must work better to live better.

Rail transport today is one of the largest sectors of the national economy, and about one-tenth of the nation's fixed capital is consumed by it. Soviet railroads exceed the level of the leading foreign countries according to many technical and economic indicators. The USSR has the highest rail freight traffic volume in the world. With 12 percent of the world's [railroad] network, it handles 52 percent of the freight and 24 percent of the passengers. Our steel highways have the lowest shipping costs in the world. It is lower than costs on railroads in the USA by a factor of 3.2. Locomotives are used by us twice as efficiently, and freight cars 2.7 times more efficiently. We derive 6 times the production from a single kilometer of track. But American railroads are still ahead in the area of labor productivity. This gap must be eliminated in the near future. This is not a simple goal, but a real one. To achieve it will require, first of all, a decisive break in the improvement of economic operation methods and the skillful utilization of the powerful production potential which is at our disposal.

The experience of the Belorussian Railroad, which, relying on the forced incorporation of achievements of science and technological progress and with the assistance of the republic's party and soviet organizations, improved all work indicators, is a striking example of a creative, highly productive approach to achievement of the assigned goal. For just the year 1985, labor productivity on the railroad was improved by 11.2 percent, and during the first half of 1986, by 20.1 percent. More than 14,000 persons were freed up for the needs of the national economy, and wages were raised noticeably for all categories of railroad workers. Continuing to develop what has been achieved, the railroad's collective is planning to increase labor productivity (in comparison with 1983) by 30-33 percent and wages by 22-24 percent.

As is known, the experience of the Belorussian Railroad has been approved by the CPSU Central Committee and the USSR Council of Ministers. The USSR Gosplan, USSR Goskomtrud [State Committee of the USSR Council of Ministers on Questions of Labor and Wages], USSR Minfin [Ministry of Finance] and VTsSPS [All-Union Central Council of Trade Unions] have done much for its formation. It will be spread this year to 10 more railroads and 2 subway systems, where more than 1 million persons are employed. All of the country's railroad collectives will be working differently by the end of the five-year plan. This, in connection with a set of other measures, will permit us to increase labor productivity by 25-30 percent. Such growth rates will permit us to resolve the /second/ of our proposed strategic problems, with the possibility of significantly increasing the salaries of railroad workers coming about; and this will be a considerable contribution toward resolution of the /third/ strategic problem. From 200,000-250,000 persons will be freed up for the 12th Five-Year Plan's new construction projects. The total savings of funds will be about 1 billion rubles.

The 12th Five-Year Plan is a responsible stage in the realization of the party's strategic plans. It should also become the turning point for rail transport. To this end, we are obligated by the resolutions of the 27th Party Congress and

the recently adopted decree of the CPSU Central Committee and the USSR Council of Ministers on measures for further improvement of the work and strengthening of the material and technical base for rail transport in the years 1986-1990.

Moving the industry over onto the rails to intensification, improving quality and the efficiency of the entire operation and acceleration of the rates of economic and social development must be done decisively and with an eye toward the future. For the task of increasing freight shipment volume by 8-10 percent, passenger volume by 7-9 percent and delivery of freight in containers and other packaged forms by a factor of 1.4-1.5 has been set. Through rennovation and re-equipping the railroads, it is planned to increase the lines' traffic and transit capicities and the handling capacity of shunting, freight and passenger stations and to accelerate further development and re-equipping of locomotive and rail car depots as well as plants for repair of rolling stock, manufacture of spare parts and switches.

Improving the qualitative indicators for utilization of equipment, primarily locomotives and rail cars, accelerating car turnarount time and increasing average train weight all loom before us. Such very important operational indicators as transfer of cars through railroad junction points and the average daily unloading volume also require increased attention.

This is all a necessary condition for solution of the /first/ if the indicated strategic tasks. At the same time, our financial operation merits serious restructuring. An industry's economic policy, its efficiency and the trend toward achieving high final results, its entire production activity is reflected in its financial totals just as if in a mirror. It is necessary first of all to increase the role of financial levers in intensification of the transportation process and the development of all sectors of the railroad economy, in the incorporation of progressive standards and rate setting and strengthening the areas of savings and economy. Questions of the development of cost accounting, having shipping be self-supporting and the mobilization of interorganizational reserves should always lie within the field of vision of finance service workers. It must be recalled that fulfilling financial plans is a controled process; it is a direct function of socialist enterprise, the creative capabilities and qualifications of the managers of each organization in our industry, each enterprise.

It is necessary to make a radical examination of our approach to the utilization of all types of resources--financial, material and fuel and power, and to make savings in everything, everywhere. Only when this condition is met can we fulfill the intensive quotas for profit and shipping cost. During the five-year plan, the industry is supposed to take in not less than 1 billion rubles profit beyond the plan and reduce shipping costs to 3.451 kopecks per 10 ton-kilometers (adjusted). This is an important source for the creation of funds for economic stimulation and financing our capital investments.

Passenger conveyance deserves our particular attention. As N. I. Ryzhkov, Chairman of the USSR Council of Ministers noted in his report at the 9th Session of the USSR Supreme Soviet at the 11th Convocation, the situation here remains unsatisfactory and it must be set right in a decisive manner. To instill order at stations and on trains and to achieve exemplary passenger

service is a matter of professional and civic pride for railroad workers. A high level of passenger conveyance is an integral and important part of the program for social and economic development of the country, a task of great political meaningfulness.

A special program has been planned and is being realized to solve this problem during the 12th Five-Year Plan. A total of 370 stations will be built or renovated, subway systems will be put into operation in Sverdlovsk, Kuybyshev and Dnepropetrovsk, and all currently operating subway systems will be expanded. Subway construction will begin in Alma-Ata, Riga, Omsk, Chelyabinsk and Krasnoyarsk. Great operations are planned in the area of radical improvement in the service and operation of passenter and commuter trains. Trains will move over the Transsiberian, Caucasus, Crimean, Kiev and Brest routes at speeds up to 140-160 kilometers per hour. Many processes, primarily ticket and cashier operations, will be automated. The on-going improvement in passenger conveyance management should yield positive results. All of this should become an object of constant concern for all services and all workers in transport.

Thus, very, very much looms before us. Therefore it is necessary to insure the organic unity and efficient interaction of the systems of planning and economic levers and stimulants, to improvement management structure, to support and develop on-site initiative uniformly, to strengthen technical and executive discipline in all sectors of the railroad industry and incorporate the achievements of science and technology purposefully and systematically.

All of this must be compelled to work toward fulfilling plan quotas and toward meeting the nation's transportation needs. The national economic complex should reliably depend on the steady operation of the transport arteries. The state plan for shipping is law, and deviations from it are not permitted; the interests of all sectors of the national economy, each consignor and each consignee are taken into consideration. The universal, timely delivery of raw materials and the transportation of finished products is a necessary condition for the normal operation of our socialist economy. It is for just this reason the state plan for shipping should be fulfilled not only with regard to total volume, but for all descriptions on the freight list, without fail.

## A Strategy for Scientific and Technical Progress

Today, the role of scientific and technical progress is growing immeasurably as the task has been posed in accordance with the decisions of the 27th Congress to impart the greatest dynamism to the economy and insure all possible growth in production efficiency. Further improvement and strengthening of the creative interconnections between science and production, establishment of the best conditions for accelerated implementation of all that is new and progressive is called for. The managers of each industry, each enterprise should sense keenly the need for radical restructuring of production, maximum utilization of existing facilities, acceleration of construction and renovation of industrial plants.

Serious work on improving the production and ogranizational structures of rail transport lies ahead. The existing system of management is cumbersome, costly,

generates parallelism and other shortcomings are inherent in it. In a word, it does not meet modern-day requirements. Therefore, significant changes to it are being, while preserving the three-stage and two-stage structure on the whole.

The new, general management scheme calls for stage-by-stage conversion to the establishment of large automated network yard [ poligon ] control centers, where all functions for operative management of operational activity will be concentrated. All of the 32 currently existing railroads will be preserved in the first stage. As concerns the divisions, serious restructuring is needed here. The experience of the Central Asian, Moscow and Odessa Railroads has shown that eliminating a number of divisions brought about improvement in the operation of these lines. It is hardly expedient to also have divisions in all of the railroad control centers. Shifting a number of the functions of these divisions to the railroad service organizations and broadening the boundaries of peripheral divisions will just liberate the network from an excessive number of junctions open space for train movement and creat the conditions for better utilization of locomotives, cars and the other fixed production capital for rail transport.

It is time to distribute the network's range among the railroads and divisions according to a more well-reasoned scheme. A positive example of this is the transfer of the Rtishchevskoye division from the Volga to the Southeastern Railroad. A whole knot of problems was resolved by this essentially simple organizational measure. As may be seen, the boundaries of an administrative division are not always coordinated with the methods of the rail network's operation. In such cases, well-founded decisions, prompted by life must be worked out rapidly and courageously made.

As analysis and experience show, structure must be improved from above and below. At the highest levels of management, it must be simplified, made less costly and centralized to the maximum extent possible, and on the lowest, it must be emancipated, given room for the initiative of labor collectives and have their independence increased. It is necessary to re-examine the division of administrative functions among the Ministry, the railroads, railroad divisions and line enterprises, so that economic enterprise in the field might be combined with increased accountability for the results of an operation.

At the Ministry, along with a redistribution of duties among managerial personnel, we are calling for combining a number of administrations and departments, vacating certain administrations within main administrations [glavk], and reducing the number of collaborators. It is being planned to restructure the work of the Ministry's College significantly and to increase its role and responsibility. This type of restructuring is on-going. Thus, at the Ministry a united administrative center has been set up for all processes associated with the organization of passenger conveyance and passenger service. It is headed by a deputy minister, to whom the Main Passenger Administration, individual subdivisions of the rail car service connected with passenger service, the Main Administration of Subway and the newly created Main Administration for Passenger Catering on Rail Transport [Glavnoye upravleniye po obespecheniyu pitaniya passazhirov na zheleznodorozhnom transporte ] are subordinated. This reorganization is already producing positive results.

Management of the shipping process on the most important routes and the organization at inter-Railroad junctions and at large terminals are more and more becoming the sphere of the constant attention and influence of operating personnel from the Ministry. Apparently, this is proper. But one must take [illegible] not only from the intuition and experience of executives; the capabilities of computer systems must be utilized to the maximum to make optimal decisions. In this area, considerable work remains to be done. An operational information and control system is to be put into action in 1987. It will permit us to control the train situation, the distribution of locomotives and locomotive crews, and solve other problems. We are planning to establish at the Ministry an automated dispatcher center which will handle train traffic and control the location and the technical condition of rolling stock on the network's routes.

Progress in microprocessor technology permits us today to begin a program of automation of handling process management. In particular, taking the experience of the Krasnyy Liman station into consideration, it is being planned to incorporate train handling systems at 25 stations. We are also calling for creating thousands of automated work places for workers in freight and engineering offices, station and depot duty personnel and dispatchers. Mass utilization of equipment to pick up information concerning train traffic directly from signalization devices automatically is being planned.

Estimates show that the planned measures for automation of control will accelerate car turnaround time by 3-4 hours, increase average locomotive productivity by 2.8 percent and raise the labor productivity of railroad workers by 3-4 percent just during the current five-year plan.

"Soyuzzheldoravtomatizatsiya," an All-Union Scientific Production Association is being organized to accelerate development of automated systems in transport. It will encompass the scientific research institute based on the PKB [Planning and Design Office] of the Main Administration of Signals and Communications, PKTB ASUZhT [Planning, Design and Technical Office for Automated Systems for Rail Systems Control] and a number of subdivisions from VNIIZhT [All-Union Scientific Research Institute for Rail Transport], as well as plant of the "Transsignalsvyaz" trust.

Electrification of the railroads remains the mainline of scientific and technical progress. The part of the system which is electrified consistently handles more than 60 percent of the freight turnaround. We have been given the task of further expanding it, developing electric traction equipment, strengthening the power and improving reliability of the electric power supply system, incorporation of information control complexes based on microcomputers and conversion to remote control of 7,500 kilometers of electrified lines, as well as electric power supply equipment at 20 railroad junctions.

Among the most important tasks of the impending period is the accelerated rate for renewal of rolling stock and other transport equipment. During the 12th Five-Year Plan we will be building 8-axle electric passenger locomotives rated at 8,000 kwt a.c., with a design speed of 160 kilometers per hour and powerful 12-axle electric freight engines. Production of mainline diesel locomotives with unit ratings of 4,000 and 5,000 horsepower is planned.

significant changes will occur in the rail car fleet. The number of specialized cars should increase by a factor of 1.3-1.4. By 1990, conversion of freight cars to roller bearings should be finished. It is necessary to increase significantly the delivery of passenger cars, as well as rolling stock for electric trains and subways.

There is a set of most important problems connected with expending the sphere of application and the improvement of STsB [Signals, Centralization and Block Signaling] and communications. Automatic block signaling and dispatcher centralization have been instituted over about 64 percent of the network. A large number of switches are still serviced manually. During the 12th Five-Year Plan it is necessary to continue and accelerate work to incorporate automatic block signaling, dispatcher and electric centralization, mechanization of gravity sorting yards and equipping rail crossings with automated signals. It is necessary to devote urgent attention to the more wide-spread application of dual automatic block signaling systems, microprocessor systems for gravity yard automation and other progressive decisions.

Rail transport has been receiving and continues to receive the majority of its equipment from industry. However, a significant portion of this equipment is obsolete, it does not meet today's elevated requirements. Unfortunately, this concerns mainly the most large-scale and critical facilities--rolling stock, track machinery, automation equipment, etc. There is a lag in designing electric locomotives on the basis of the best achievements in the world. The problem of delivering a more powerful and reliable diesel locomotive for rail transport has not yet been resolved. The situation is not better with certain types of cars, track machinery and other equipment.

It must be remembered that the railroad workers are the clients for this equipment, they use it for us. Therefore, we must be most demanding and act with all principles concerning questions of improving its quality at all levels, from defining technical quotas for developers to receiving the ready goods from suppliers. The problem is being posed today before scientists and transportation specialists in the form of taking the most active participation in the development of the modern equipment being supplied by industry and achieving the development of locomotives, cars and track machinery on the level of world models and higher. We must make our contribution to the restructuring of the machine building complex which is being carrout by the party.

Particular attention is paid in decisions of the 27th CPSU Congress to economic methods of industrial management. This concerns our sector totally. The most important thing here is to develop and introduce well-founded, intensive, but realistic standards, provide a stimulation for highly productive and high-quality work, to create an efficient economic mechanism which encompasses and links together the activity of all levels of management within our diversified economy and to insure a growth in labor productivity which outstrips the growth in wages. It is on precisely these key problems that commanders of production and transport economists should concentrate their attention.

It must be acknowledged that today rail transport is still not armed with a sufficiently developed economic tool which actively influences production, which

financial services within a ministry and in provincial organizations reduce their activity to a mechanical accounting and fixation of the situation which is developing. It is not surprising that under these conditions the industry did not fulfill plan quotas for production cost, profit or deductions in the Gosbyudzhet [State Budget]. At times during the work process, serious difficulties arose with the financing of operational activity, major repairs and measures for the social development of the collective.

This fact obliges us to re-examine radically the relationship toward economic policy and finances. It is necessary to take effective measures, first of all economic measures, to reduce losses and non-productive costs associated with the lack of security for cargo being shipped and unplanned repair of rolling stock and to eliminate serious shortcomings in the organization of the work of rail workers which at times causes overtime work and at others idle time. It is universally necessary to demonstrate socialist enterprise, search out reserves to produce incomes which exceed the plan and expanding paid services to the populace.

We must direct the re-structuring of management for the entire economic operation within the industry toward a final result which yields an obligatory fulfillment of plan quotas, reduction in shipping costs and increase in labor productivity. Without the necessary organization of the practical economic system for transport, without a maximum utilization of economic levers, it is impossible to achieve a high level of efficiency for the shipping process.

New management methods, to which the Dnepr (Pridneprovsk) and South-western Railroads, their divisions, line enterprises and organizations were converted 1 January 1986, are called upon to play an important role in improving the industry's work. These measures are being implemented in the interest of developing creative initiative of the workers' collectives, strengthening cost accounting, expanding their rights in planning and managerial activity and increasing the interest and responsibility for the growth in the transportation process.

The first results of operating under the new conditions are positive, but there are a number of questions which remain to be resolved by our economists, and resolved without delay. It is all the more important since preparations are presently underway for converting all of the railroads to the new management methods by 1 January 1987. Simultaneously, as was noted, the conversion of railroads to the 'Belorussian Railroad' method of operation will continue. The combination of these two forms for increasing the efficiency of the industry should insure success in solving the problems which have been posed.

It is also time to re-examine the system of work indicators for the railroads, [their] divisions and line enterprises. Today the often condemned but still living principle of planning from that which has been achieved, without taking into consideration the growth in equipment, in the actual and requisite shipping volume and the availability and utilization of reserves still rules. Of course, this is not proper. The plan indicators should reflect the concrete conditions and actual capabilities of one subdivision or another.

Insuring a unity of the actions of all branches of the industry is no less important a side of the economics of transport. Our complex, diversified economy can function efficiently only with the interaction of all services, and each of them should execute its part of the common business precisely and work for the shippers plan. It is inadmissible, for example, for such a situation to exist wherein car repair plants successfully complete the year with regard to railroad and commodity production and other economic indicators, but the program for rolling stock repair and spare parts production is systematically not fulfilled. This says to us that here other criteria are needed, other levers which insure the needed accountability for the completion of the industry's chief critical problems.

Time advances a number of other important problems in the area of economic operation in transport. We still have to develop economically expedient service periods for fixed capital, new standards for amortization deductions, unified standards for repair costs; their introduction should insure a more timely renewal of fixed capital while reducing repair outlays. It is necessary to improve the selection of economically optimum measures for developing the traffic and handling capacities on the most important railroad routes. It is necessary to organize an in-depth study of modern production management methods, new conditions for economic operation, and of the Sverdlovsk line's experience in increasing the efficiency of operation and accelerating the labor productivity growth rate, etc. within the economic education system.

The acceleration of scientific and technical progress and the growth in production efficiency are inseparable from concern for work quality and product quality. The decisions of the 25th Party Congress and the decree of the CPSU Central Committee and the USSR Council of Ministers "Measures for the Fundamental Improvement in Product Quality" were set in this direction. The improvement in quality of all work should become a nationwide, state-wide, all-national matter. For railroad workers, it is especially maintaining the precise rhythm of the transport conveyor and of ensuring the timely delivery of cargo and its complete security, plus a high level of passenger service.

In order to successfully carry out such extensive and complex tasks, it is necessary to radically restructure our scientific research work. Today's rail transport needs truly revolutionary engineering and technological decisions which are capable of operating breakthroughs in all levels of economic activity and radical improvement in the quality of the transportation process. It is necessary within the shortest time period to establish a general scheme for development of combinations of science on industry and the VUZ's and for the organization of scientific research and scientific experimental production. Converting to primary use the new automated system of performing work toward the development and introduction of new equipment and technology will facilitate implementation of such a system. The material interest and accountability of clients and executives for the end results of scientific and technical work and experimental design work will promote an improvement in their efficiency to a considerable extent.

## Means of Operations Intensification

Experience shows that today the traditional operations methods do not always produce the proper effect. Therefore it is necessary, while cautiously preserving the best of what has been achieved, to develop and incorporate solutions which are new in principle and which are directed toward intensification of transport production.

'Intense technology of the transportation process' is a capacious, multi-plan concept. It includes increasing average train weight, growth in the static load per car and precise organization of work at terminals, stations and junctions.

The steady operation of junctions guarantees the unimpeded transfer of trains from line to line. Workers of the Southern Railroad are displaying an example of creative initiative in this area. Having broadly developed a competition for the precise reception of trains at all junctions on the basis of precise operating procedures, they are successfully meeting plan quotas and socialist obligations. The Ministry of Railways Collegium and the Presidium of Central Committee for the industry trade union, having taken note of the great significance of this initiative, adopted a resolution by joint decree to set up special groups on all the railroads and divisions for the organization and systematic monitoring of the incorporation of initiatives. The universal propagation of the experience of the Southern Line will actively facilitate reaching the aforementioned limit--the daily handling of 400,000 cars.

Measures to reduce car idle time during loading, switching and repair operations, accelerating car turnaround time, raising traffic speed for trains, insuring precise, rhythmical operation of stations, increasing the labor productivity growth rate and improving production efficiency are all included within intensive operating procedures.

The concept of intensification is the basis for the industry-wide, goal-oriented programs confirmed by the Ministry of Railways Collegium. They include a broad circle of questions, the answer to which requires the creative, interested participation of all railroad workers. Realization of these programs will permit us to raise the economic, technical and technological security of the transportation process to a higher level and to achieve the accelerated and purposeful re-equipping of rail transport.

Let us take, for example, the program for increasing average train weight. Under the conditions of total utilization of capacity, on a number of the crucial routes within the network, increasing train weight is a most important resource. In the years 1975-1983, it increased annually by an average of 17 tons, and in 1983-1985, by 65 tons. Due to the sharp increase in the growth rate of this indicator, we succeeded in increasing shipping volume significantly.

Today, trains with a weight of 6,000-8,000 tons with locomotive at the head are in regular operation for now only on runs with a total length of 10,000 kilometers. In the future, the range of operation for such trains will be expanded to 60,000 kilometers. According to estimates, this will provide an addition of

95 tons in average train weight. Operating combined trains with weight of from 8,000-16,000 tons using locomotives distributed throughout the length of the train on 100,000 kilometer sectorswill permit us to increase the average train weight by another 300 tons. And finally, as a result of expanding the operating range of combined empty trains 400-430 axles in length to 45,000 kilometers, it is planned to increase the average train weight by 105 tons. Overall, average train weight should be increased by no less than 480 tons due to these measures, which will be realized on the network's most important routes by the end of the 12th Five-Year Plan.

The importance of this program is undeniable, however delay is being permitted in its resolution. The time has come to establish a permanent "nucleus" for operation of long and combined trains through interurbanjunctions and network routes and to organize operational control of how they proceed through the joints. But due to underestimation of this resource on the part of the Main Administration of Railroad Traffic, the poor coordination of the activities of the railroad administrators and a parochial bureaucratic approach normal to the matter, this was not achieved. As a rule, long and combined trains are restricted to the confines of single railroads. This situation must be jointly corrected with the briefest possible delay.

Increasing the length of passenger trains is no less important. At its origin, moving passenger trains of extended length was organized for the first time in 1984 by workers of the Moscow Railroad. Today long trains consisting of 24 cars are already being dispatched from the capital to Gorkiy, Kostroma, Yaroslavl, Minsk, Kaliningrad and Kiev. Today this is the most efficient method of conveying more passengers, particularly on heavily traveled routes.

Within the framework of the intensification program, much attention is being devoted to increasing the static load for rail cars, one of the main trends for increasing both average train weight and efficient utilization of rolling stock and for savings in traffic capacity. In 1985, as compared to 1984, static load rose by 1390 kilograms, making it possible to increase freight shipments by 94 million tons without calling on additional rolling stock. In 1986, it must be further raised to carry additional tens of millions of tons of cargo using the same rolling stock.

The program for increasing train traffic speed also has great social and economic significance. Freight and passenger delivery time characterizes the efficiency of rail transport operation. High-speed traffic in Soviet railroads is being developed differently than as is the case abroad. The main characteristic in our country is that high-speed passenger trains and heavy-duty freight trains run over the same lines. Fortifying the track, providing electric power and other facilities which are being carried out to insure high-speed passenger traffic will also permit us to increase the speed of freight trains. But this means that on high-speed lines, cargo delivery time can be reduced.

The development of heavy-duty [ tyazheloveesnoye ] traffic is creating resources in the network's carring capacity, and it provides favorable conditions for increasing speed out on the line. However, we have not yet made use of this capability. Due to heavy losses from a harsh winter, speed out on the line decreased by 0.7 kilometer per hour in 1985, as compare to 1984.

Increasing train traffic speed is not a simple matter. It requires considerable funds for track repair and renovation of man-made structures, electric power supply facilities, automatic block signaling and locomotive signalling. Moreover, much can be done to improve traffic organization. A complex of deeply thought out and mutually interdependent measures and the active and purposeful work of operations experts, designers and scientists will permit us to resolve the problem of increasing traffic speeds successfully. The future lies with high-speed traffic, and insuring it requires energetic activities.

Today the railroad network is extremely unevenly loaded down. Therefore one of the important problems of intensification is to adjust where expedient the burden on lines with little traffic to the level of the main lines carrying heavy traffic. In order to do this, first of all we need to substantiate the value of the indicators (speed, train weight, traffic density, speed on the line, etc.) which characterize the level of intensification. The more routes we convert to intense operation methods, the more traffic and carrying capacity reserves we will have. Because of converting to intense technologies, the productivity of the most important east-west routes in the network will reach 130-150 million tons per year in 1990 and 190 million tons by the year 2000.

It is particularly necessary to dwell on the intensification of single-track lines. Has everything been done here, have all resources been applied? On estimates of scientists and specialists, even now it is possible to raise the productivity of single-track sectors up to 40-50 million tons per year in both directionsby organizing heavy-duty and high-speed traffic, increasing car static load, automating train traffic control and the basic operations for processing the volume of car traffic, improving the utilization of equipment and mechanizing and automating repair operations. But in part instances, these are costly and long-term measures, and many can also be done today.

On the Volga Railroad, for example, there have proven through action, that just by improving traffic organization on such sections, it is possible to increase the speed on the line by 1½ percent and the carrying capacity by 12 percent. The experience of the Gorkiy Railroad workers is of interest with regard to incorporating intense procedures for handling heavy-duty and extra-long trains on sections with a limited length of station tracks. Here they have built several so-called 'legs' sidings with one or 2 additional tracks, to intermix trains with extra weight or length with ordinary trains. As a result, they have successfully solved an important problem over the entire route without large expenses for renovation of stations, with minimal costs.

In rail transport an accurate line organization, organization and a strict working rhythm are needed. The technological basis organizing the traffic schedule and the plan for forming up trains. There is no alternative to strict observation of the traffic schedule; it should be fulfilled for certain. There are many examples of just what an enormous disruption the motorist experiences from the many [examples] of an irresponsible regard for the train traffic schedule, particularly for passenger trains. It is also needed to increase discipline toward the plan for forming up trains. Trains are still often dispatched along the main routes, and at times dispatchers' routings are prematurely broken up. Eliminating these violations will permit us to realize significantly the volume of car handling at the most important, heavy-traffic sections.

Over the past 15 years, railroads have not been fulfilling car turnaround quotas, and the situation has not changed for the better in 1985. Because of this fact, railroads are losing lading resources, a shortage of rolling stock is being felt and operating costs are increasing. Delaying car turnaround time by only 0.1 day is equivalent to reducing the volume freight dispatched by 60 million tons per year. We can no longer condone this. Fulfilling quotas for car turnaround time is a controlled process; all lines have adequate capabilities to accelerate it significantly. It is a matter of organization and specific decisions.

In this regard, the initiative of the VNIIZhT [All-Union Scientific Research Institute ofRail Transport] and the Moscow Railroad in incorporating intensive local operating procedures merits broad dissemination. A comprehensive program of organizational and technical have been worked out which are aimed at accelerating car turnaround time and reducing its idle time during loading operations. The experience of the collective at Beskudnikovo station convincingly attest to the reality and the effectiveness of this program. Here car idle time has been reduced by 30 percent due to computerized formation of multi-group trains with a minimum number of trips [ reys ] on specially constructed, small shunting facilities, assembling cars together into ready-assembled [ sbornyy ], export and transfer trains according to the regions and unloading zones and incorporating firm schedules for car supply and collection.

As has been noted, we have the highest level of rolling stock utilization in the world on our country's railroads. It also increased in the 11th Five-Year Plan. However, much of what was planned was not realized, which kept us from reaching our planned levels.

The indicators for locomotive utilization are particularly important for insuring steady shipping. Of these, 'productivity' is of universal significance; this indicator depends to a great extent on the average train weight and average daily mileage for the locomotive. As has already been said, train weight is now growing at accelerated rates, and this is an irrefutable achievement. However, the average daily locomotive mileage is being met at a low level. The main reasons for this are the underestimation of the importance of this indicator and the reluctance of many lines to be engaged in this matter with any seriousness. There is something here for the management of the Main Administrations of Traffic and Locomotives to ponder. Achieving an average daily mileage of not less than 500 kilometers for locomotives is an important resource for increasing the operating efficiency of all the railroads. Coming up to this level will permit us to free up to 1000 locomotives for additional work during a single year, and this is a great savings in money, fuel and electric power. The constant improvement in the utilization of locomotives, cars and our other equipment is a most important requirement for all subdivisions and enterprises of rail transport.

## Improve Equipment Reliability

A course toward intensification of all operations imposes increased demands on equipment reliability. Its reliability is an obligatory, necessary condition for the successful conversion to intensive shipping procedures.

Much remains to be done in this important area. In spite of the measures which are being taken, damage to locomotives while out on the line, uncouplings of defective cars, limitations in track condition and breakdowns in electric power supply, STsB [signaling, interlocking and block signaling] and communications equipment are still being permitted. Equipment failures at times even result in serious train traffic safety violations. The estimates of specialists show that losses due to interruptions in traffic flow caused by the unreliable functioning of equipment make up about 10 percent of our shipping capacity.

An unsatisfactory situation has arisen in rail car maintenance. For the year 1985, the average number of daily warnings which are not scheduled increased by 2.2 percent, and their duration increased by 8.7 percent. Each sixth warning was associated with rail flaws, each fourth by defects in switches. The Ministry of Railroads has secured a significant increase in delivery of rails and switches for the 12th Five-Year Plan. However, we were unable to meet our needs completely.

Under these conditions, improving track maintenance and the balance among all types of repair, increasing the number of kilometers of main line with improved quality track and switches, introducing progressive switch designs with a continuous running surface, finishing off and implementing on the railroads of a strategy for repair and re-laying old rails and other materials in the upper track structure are decisive directions in the work to reduce the number of working warnings.

A critical problem which must be resolved during the current five-year plan for a radical breakthrough in the track maintenance system is the further strengthening of the capacity of track machinery stations and reinforcing track sectors and converting them to track maintenance by machine using reinforced crews. It is very important to increase the output during 'windows' when doing track repair work. On the most heavily traveled lines it is necessary to incorporate intensive repair procedures with dual, and at times triple sets of machinery. This type of technology should be used universally, first of all on those systems and routes where carrying capacity is inadequate. Performing the fundamental quantity of work by machine to keep the track in continual repair will permit us to substantially increase labor productivity, significantly improve track condition and sharply reduce the number of warnings of reduced speed. Simultaneously, the possibility will emerge of solving one of the most important social problems in transport, that of emancipating tens of thousands of people from heavy labor and removing from a high danger production zone.

In 1985 we succeeded in reducing the number of damage reports and unplanned coming in for unscheduled repairs. This permitted us to free up dozens of sections for train work every day throughout the network. However, the number of unscheduled repairs in locomotive maintenance is still great, and great amounts of down time are still permitted during planned reconditioning. The accountability of locomotive and repair crews for locomotive repair and maintenance must be increased to reduce these losses, their work components must be strengthened, repair quality must be improved and intensive procedures and equipment for comprehensive mechanization and technical diagnostics must be incorporated more actively.

First and foremost, there are automated complexes, diverse repair units, flow lines and mechanized work sites. Model comprehensive locomotive technical diagnostics points should be developed, taking into consideration the experience at the Tashkent Locomotive Depot (Central Asian Railroad) and the Taiga Depot (Southern Railroad) and the developments of specialists at the Main Administration of Locomotives and VNIIZhT. This problem should fundamentally be resolved by 1990. A sharp increase in production of equipment will be insured through the efforts of experimental shops at locomotive depots during the current five-year plan.

Increasing locomotive reliability is a comprehensive task which includes, in addition to the considerable increase in repair quality and incorporation of intense technologies, the modernization of machinery and components. All of this, according to estimates, will reduce locomotive vulnerability to damage by 12-15 percent, and it will increase the level of automatization and mechanization in maintenance work by 15-20 percent. As a result, no less than 100 locomotives will be freed up for operation.

Serious changes are needed in car maintenance. The main thing here is to improve the technical condition of the rail car fleet. It is necessary to purposefully develop and more efficiently utilize the car repair base and unremittingly continue the course taken toward industrial methods of rail car reconditioning and preventive maintenance. Each depot and car subdivision in rail car maintenance should be assigned quotas for production intensification and for increasing shift work and production output. The quantitative determination and substantiation of the most important direct and recommendable limiting values of car depots, given maximum capital investment, must be pursued more energetically. Due to the mechanization of repair operations and the incorporation of automated lines and efficient inspection facilities, the volume of work performed at the depots using industrial methods should grow by 15-25 percent, and the labor productivity of the repair workers be no less than 27 percent. Intensification of repair work will yield an actual possibility of completely satisfying the railroads' needs for freight car repairs and reduce their idle time while undergoing it at depots to 2 days.

The technology for car maintenance and preparing them for shipment, first of all in the metro cars, should also be built on new, progressive principles. The structural incorporation of diagnostic facilities, a maximal concentration of car maintenance at special, highly mechanized points, outfitted with the best work organization and rational improvements in the working conditions for rail car maintenance workers are the orientation points for this work. Critical studies available for layout diagrams of PKMAS [expansion enlarged assembly and other automated inspection equipment, operating servosystems and organizations to evaluate PTO [Maintenance Point] work quality during shifts, permit us to improve maintenance of cars in extra-long, combined and heavy-duty trains and to impose the assignment non-stop run of cars on roller bearings to 600-800 kilometers.

Increasing the reliability of the freight car fleet calls for their comprehensive modernization, quotas for which should be set by the railroads and car repair plants. Strengthening the fight against damage during shunting and loading and unloading operations, a universal, cautious and proprietary attitude toward cars as national property will also improve mechanical car condition.

A special role in insuring the constant operation of our equipment belongs to our sectorial industries. From the plants of the main administration for repairs we require first of all a significant increase in the volume of capital reconditioning of all types of railroad equipment and in output of spare parts and other products. During the 12th Five-year Plan, the MPS's plants are faced with increasing production of major repair work on the main types of rolling stock by more than one-third, and by a factor of 1.5-2 for spare parts and the most important types of products. Industrial production volume will grow by 18 percent, and it is planned to to produce products valued at 100 million rubles above the plan. At the same time, a set of no less important questions associated with increasing work quality in the transport industry should be cardinally resolved.

All of this will be reached by accelerating scientific and technical progress and the growth of labor productivity--by 19-21 percent tentatively. Conversion to flow-line and conveyor method of railroad equipment repair and putting 110 mechanized flow lines, no less than 280 flexible robotized complexes and machine tools with numerical program control and 28 automated control systems into operation is all called for by the program for plant development for the years 1986-1990. We are planning to complete renovation of 25 plants and begin re-equipping and expanding another 14.

In the signals and communications service, one of the basic directions for increasing reliability of equipment operation is the broadscale incorporation of crew forms and industrial methods for maintenance and repair and using small-scale mechanization and automation of labor-intensive processes and engineering operations. In conjunction with a number of other organizational and engineering measures, this will permit us, according to estimates, to reduce the number of instances of failure in signaling, interlocking and block signaling and communications equipment by 10 percent and free up approximately 20,000 workers during the years 1986-1990, taking into consideration the maintenance of newly incorporated equipment.

In many respects, there are similar tasks facing the electrification service which must still be resolved. Progressive technical decisions at substations and within the contact network, using modern diagnostic facilities and incorporating a system of contact network maintenance and repair using special machinery and pieces of equipment should yield a substantial increase in electrification reliability.

The precise, reliable operation of all links in the transport conveyor is unthinkable without discipline and a high degree of accountability for each participant in the transportation process and without insuring total safety for train traffic. Instances of defective work and safety violations result in irrecoverable losses to traffic and carrying capicity on the lines and they influct considerable material loss, and sometimes they constitute a threat to the health of the people.

A majority of such instances is associated with serious omissions in the work with the direct performers of the technological process. The bases for behavior and order of activity for each worker are strictly limited in regulations and duty instructions. That means that the most important thing is to impart to

[illegible] of the year. This requires the close collaboration of builders and railroad workers. Coordination of their work is an important factor in the successful realization of plans for strengthening and developing the material and technical base of rail transport and the resolution of the problems raised before the industry.

## Improve the Interaction of Related Industries

The efficient rail transport operations depends in many ways on the close interaction with various ministries, departments and enterprises, our 'neighbors.' There are still many unsatisfied requirements in this area. After all, at a number of transit stations idle time for local cars reaches 30-40 hours and more. This means that the necessary contact is not always achieved in the operation of railroad and industrial enterprises. The consequences are losses of loading transferred at station "pushing" with every turn, power supply disruptions and technological breakdowns are still great. Many unresolved questions have built up in the work of railroad workers and truckers, with regard to organization of freight delivery. It is time for all to exhibit the need for an interrelated set of narrow departmental measures for [illegible] with interests and to improve the responsibility of workers involved in [illegible] at the "junction."

At the same time, the decisive main reserve of the increased, [illegible] operation of the various types of transport, consignors and consignees, [illegible] and terminals, this is the coordinated interaction of workers, railroad workers, truckers and river workers in the Lenfrakht and Obvodnyy transportation [illegible] collectives of the South Urals Railroad and industrial enterprises in Chelyabinsk, Nizhniy Tagil and the capital machine and instrument enterprises in Moscow, many [illegible] operations have been approved by the CPSU Central Committee. The [illegible] decisions of such a scope of efforts, directed toward improving transport service for the national economy, is being further developed, particularly in the area of improving operations of industrial and transport enterprises.

Thus, in recent years there has been incorporated and is now in operation a [illegible] for supplying the electric power stations of the Urals, Kazakhstan and Western Siberia with Kuznetsk coal by prime container trains which pass through a large area within the confines of the Volga, Sverdlovsk, South Urals and Central Asian railroads. An agreement is [illegible] annually among the collectives of the "Yuzhuralugol" Association, the electric power stations and the railroads for a socialist competition for regular delivery of fuel and improving the utilization of rolling stock. Operation of [illegible] trains is organized at the present time; they are delivered on the schedule set by the optimum rating for delivery of "from sea to sea" wells. This creates operating [illegible] the volumes of coal and iron ore delivered to grow [illegible] to year. Just during the 11th Five-Year Plan, their shipment increased [illegible] factor of 1.2.

Today [illegible] on the Magnitny Steel Mill and Magdee [illegible] Gorkiy Motor Vehicle Plant and Gorkiy-Sortirovochnaya [illegible] are many other economic examples of the interaction of these [illegible].

gain and mutual assistance, working as a unit, which customers and trucks are characteristic of the joint functioning of these collectives.

[illegible] as an example, let us take the organization of operations for shipping timber. As is known, at the beginning of this year the associations "Vyborgtsellyuloza" [Vyborg Pulp and Paper and Wood Processing Combine] took on increased contractual commitments for the preparation and delivery of pulpwood timber. Railroad workers supported their initiative, and for six months (January-April) the necessary rolling stock was issued on all timber-transporting lines. As a result of the coordinated work, the plan for the 4 months was not only fulfilled, but overfulfilled. More than 1.5 million [illegible] of lumber were delivered above the plan. This was a great success. However, in May, the Vyborgtsellyuloza's enterprises failed to deliver the felled timber to the stations in the established time. The cooperation broke down, and the shipping plan was not fulfilled due to underloading of cars. Only in June, a number of railroads — Oktyabr, Severnaya, Sverdlovsk and others — did not receive enough empty cars for the lumber which was delivered for shipment. All of this demonstrates that the organization of production operations for related industries is a continuous process requiring the constant attention of its participants.

[illegible] of loading and unloading operations must be carried out on [illegible] industrial enterprises, [illegible] the traffic schedule. [illegible] the country's industrial rail transport is an extensive and costly [illegible] which great material resources are concentrated. But its material capabilities [illegible] are by no means fully utilized. [illegible] of railroad workers in this area, [illegible] control, efficient management of material and industrial resources.

Railroad workers should actively participate in eliminating [illegible] in the operation of transport-warehousing systems of the enterprises and monitor the [illegible] in unloading and loading areas. These efforts will be laid here [illegible] however, for the steadiness of these [illegible] and the efficiency of [illegible] depend directly on the reliability and stability of the operation of transport shops at industrial enterprises.

It is necessary to disseminate more widely in industrial enterprises the experience of crews at Moscow universities of organizing points of mailing [illegible] and containers using their own efforts. In 1981 alone, they received about 1 million rail cars and 800,000 containers. Railroad workers are ready to aid the industrial enterprises which request [illegible] initiative with materials, spare parts, advice and [illegible] of workers.

Ensuring freight security is another important "reserve" source of increased [illegible]. The Ministry of Railways is [illegible] concerned by the situation [illegible] developed in this matter. Control workers [illegible] at the stations, primarily at the Main Administration of Locomotive Transport and [illegible] of Work, who are obligated to be directly involved with ensuring total [illegible] of freight in the establishment of train orders, in coordinating [illegible] and with [illegible] in solving [illegible] associated with [illegible] control over the execution of a number of [illegible] already adopted and the [illegible] personnel, and the measures which are being [illegible] do not yield the [illegible]

results; losses from unsecured shipments are being reduced at a rate which is intolerably slow. It is time to be done with negligence and the indifferent attitude toward the national good--responsibility for this will be more strict. Moreover, security of freight in transit is a difficult question which requires the joint efforts not only of transport workers, but of freight consignors and consignees, as well as law enforcement [ provookhranitelnyye ] bodies. Therefore we have to solve it together, simultaneously in all directions, technically, organizationally, economically and judicially.

The problem of efficient, thrifty utilization of the country's transport potential merits particular attention. The need for eliminating inefficient shipments has been pointed out more than once. However, narrow industry or departmental tendencies at times take over when drawing up plans for freight delivery. And here we have to work together with the planning bodies in order to insure comprehensive resolution of transport problems within the national economy. Considering the demands of industry, agriculture, capital construction and material and technical supply in full, it is important not to forget that the capabilities of transport are not without limit, that economy linked to inefficient shipments are an unrecoverable loss to the state. It is time to change the approach to transport costs, they should not grow infinitely and without basis. Transport resources must be considered in the same way as material, power and labor resources; we should insure the appropriate conditions for their conservation on a state level.

The development of internal economic ties is acquiring greater and greater significance under modern-day conditions. Railroad workers are making great efforts to strengthen them. However, there are still cases of irregularities in shipping import-export cargo, of their being unjustifiably planned. Such phenomena are totally unjustifiable. We should insure international traveling in a timely manner, at a high level of quality, while still solving the political and economic problems which have been imposed on our industry.

At the same time, we need to develop international scientific and technical collaboration from all sides on a mutually profitable basis. To do this, we must increase the results our work produces in international organizations, primarily the OSZhD [Organization for Collaboration of Railroads (of cooperation of transport administrations in socialist countries)] and in coordination centers, and to concentrate efforts to meeting the quotas set by the Comprehensive Program for Scientific and Technical Progress for Member Nations of CEMA.

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# OFFICIAL OUTLINES RAILWAYS ELECTRIFICATION PROGRAM

Moscow ZHELEZNODOROZHNYY TRANSPORT in Russian No 6, Jun 86 pp 14-17

[Article by MPS [Ministry of Railways] Electrification and Power Supply Main Administration First Deputy Chief and Chief Engineer G. V. [illegible] under the rubric of the Rail Transport-86 Exhibition: "The Electrification of Railroads"]

[Text] Providing a stable electrical supply for train traction is a task of paramount importance. This requirement also relates to other transportation electric-power devices, the reliability of the power supply of which determines to a considerable extent the uninterrupted operation of enterprises employed in the shipping process.

The timely execution of operations for strengthening power-supply devices is a major task arising from the program for raising the weight of freight trains and ensuring the regular passage of heavy trains. These operations are to be carried out in 1986-90 on electrified sections of a total length of more than 9,000 km [kilometers]. This requires the accelerated development of a number of technical questions. First and foremost on providing protection for the railway system from short-circuit currents commensurate with operating currents as well as raising the reliability of current collection. Work is also to be done in the current five-year plan to improve the technology and system of organization for the repair of technical equipment. Further raising the efficiency of the power system and the quality of electric power and optimizing the operating conditions of equipment and the traction and distribution networks.

Electrification of the railroads in the current five-year plan will be carried out principally using alternating current. The 2 x 25 kV [kilovolt] power-supply system, which has a number of advantages compared to the 25 kV one, will be further disseminated. This system is currently being operated successfully on sections of approximately 1,600 km. An improvement of the 2 x 25 kV system is projected based on the use of high-capacity (25 MVA [megavolt-amperes]) single-phase traction transformers and transformers without [illegible] regulators, which will further expand the capabilities of this system and will permit an increase in its operational reliability.

developed structural elements, assemblies and materials of increased reliability and by the accelerated development and assimilation of improved structural elements and processes. Paramount attention in this should be devoted to the improvement of assemblies and elements with the highest rates of damage, as well as to structural elements whose maintenance is associated with large labor expenditures.

An important role in reducing wire breaks and burnouts belongs to the non-reinforced method of wire connection. The connection of aluminum and aluminum-copper wires executed using thermit and argon-gas arc welding will be widely employed, as will all-welded aluminum-copper commutator segments. The process of connecting multi-wire copper and aluminum cables using a special adapter manufactured by the shift method of cold welding is extremely promising. The installation of such adapters on wires is carried out through molding in a reduction matrix by hydraulic hand press. Exhibition visitors can acquaint themselves with the new process at booths in the Soviet section.

The reduction of damage to the catenary system will also be provided for through the application of new types of insulators, which are widely displayed at the exhibition. The series production of porcelain shackle insulators with improved electrical and mechanical properties, including insulators with ribs of various diameters, is being organized starting in 1987. The application of the latter will make it possible to eliminate damage to them from arcing over by birds. The newly developed ribbed suspension, strain, cantilever and polymer pedestal insulators, as well as the fiberglass rectangular-shaped and smooth-shackle ones, have good operating features. The incorporation of these insulators will be considerably expanded. A large saving will be obtained on direct-current sections through the use of PF-70Zh electrical-corrosion resistant porcelain suspension insulators with a rod of varying shapes. Improved sectional insulators with polymer insulating inserts, including for the formation of neutral inserts on alternating-current sections, will be further disseminated.

In order to eliminate damage to the catenary system as a consequence of the arcing over of insulation in bird nesting on rigid cross sleepers, highly effective electrical repelling protection will be widely employed. The incorporation of this protection is also projected for direct-current sections.

Low-alloy wire with tin additives, the application of which has begun in recent years, plays a large role in reducing catenary-wire breaks and burnouts. Compared to copper, this wire has higher (by 10-12 percent) wear and temperature stability. The structural elements of catenary suspensions will also be further developed. In order to ensure high-quality current collection at high traffic speeds, a uniformly elastic catenary suspension somewhat new in principle has been developed that is intended for lines with speeds of up to 350 km/hour. Extremely promising, especially for use in tunnels, is a diamond-shaped semi-compensated suspension which has 15-percent less vertical height than an ordinary suspension and enhanced repairability when damaged. It is also presented at the exhibition booths.

Great significance is assigned to the creation and incorporation of technical diagnostic equipment in raising the reliability of the catenary system. IKT-5M-P-type portable infrared thermometers are already in use on the catenary system for remotely monitoring the heating up of electric-wire connections. This compact instrument (1.8 kilograms), displayed at the exhibition, provides for the measurement of the temperature of a heated part of 50 x 50 millimeters at a distance of up to 16 meters with an error range of no more than 5 degrees Celsius. Along with this, a similar instrument for monitoring the heating of catenary-system parts from a laboratory measurement car is being developed, as are devices for the automated measurement of wear on double contact wires.

An increase in productivity and a reduction in manual labor in the maintenance and repair of the catenary system will be ensured through the development and production assimilation of special new equipment in the current five-year plan--excavators and self-propelled flatcars with pivoting booms, mechanized flatcars for the shipment of supports, large railroad cranes, and cars with installed areas equipped with mechanized tools. A MOG-6 ice-clearing installation and an electric winch for stretching carrier cables, with a removable basket for aerial operations on the crane installation, will be mounted on a modernized ADM-type catenary-system internal-combustion railcar.

Raising the technical level of traction substations will be executed basically through incorporating new and improved equipment with enhanced reliability and improved power-engineering features. The replacement of low-capacity AB-2/4-type fast-acting circuit breakers with BAB-43 breakers on the feeder lines of direct-current traction substations will be basically completed.

The incorporation of new TPED-3150-3.3 rectifier converters with more economical 12-pulse rectifier circuitry using stable-cycle preformed rectifier tubes was begun this year. This rectifier unit is on display at the exhibition. In order to improve the voltage quality in the traction network on a number of direct-current sections, traction transformers with contactless automated regulation, as well as voltage-booster devices, will be used.

The reconstruction of alternating-current traction substations basically concerns the 27.5-kV distribution devices, where oil circuit breakers will be replaced with vacuum ones. A chamber with vacuum circuit breakers, on display at the exhibition, will be employed in the 10-kV distribution sections. The reliability and selectivity of operation of protective traction feeder lines on alternating-current sections will be ensured by the application of new AZFI-type apparatus based on integrated circuits. The apparatus includes a current and three levels of remote protection, the tuning out of aperiodic constituents, and has a high degree of redundancy. One can become acquainted with this apparatus at one of the booths in the Soviet section.

The automation and telemechanization of power-supply devices is one effective means of raising the reliability and efficiency of management, also ensuring the incorporation of progressive forms of organization for equipment maintenance and a growth in labor productivity. A high degree of facilities automation has currently been achieved. All traction substations, sectional stations and parallel-connection points are equipped with automation

equipment. Some 75 percent of the electrified lines are equipped with telemechanical equipment. The rate of telemechanization will increase by almost 40 percent in the current five-year plan compared to the last one. Along with this, the incorporation of new MRK-type telemechanization systems based on integrated circuits will begin. The experimental MRK unit, which is being placed into operation this year on the Moscow Railroad, has enhanced reliability compared to the LINSA system currently used, permits the management of a large number of control points with an increased volume of information and provides for combination with computers. The MRK unit is on display at the exhibition.

Supplementing the central power-dispatch points currently existing on four railroads that provide for control of the operation of power-supply devices on all telemechanized sections at the railroad management level, these complexes will also be incorporated on five more railroads. The central power-dispatch points will be equipped with computer management information units. The first such unit has been placed into operation on the Donetsk Railroad. The minicomputer management information units for the creation of dispatcher ARMs [automated workstations] will be employed at the power-dispatch points of the power-supply sections (at the railroad division level). Such a unit has been placed in experimental operation on the North Caucasus Railroad.

A considerable expansion of the incorporation of automated devices for determining damage points on alternating-current catenary systems and high-voltage power-supply lines with automated lock-out, on display at the exhibition, is envisaged.

Microprocessors will be used for the purpose of further improving the monitoring, diagnostics and management of equipment and operating conditions at traction substations. The completion of testing on the Podstantsiya experimental microprocessor management information unit, which has been installed and placed in test operation at one of the substations of the North Caucasus Railroad, permits the beginning of experimental incorporation of these units on a number of other railroads in the current five-year plan.

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# RAILWAY SIGNALS, COMMUNICATIONS AUTOMATION PLANS

Moscow ZHELEZNODOROZHNYY TRANSPORT in Russian No 6, Jun 86 pp 24-25

[Article by MPS [Ministry of Railways] Signals and Communications Main Administration First Deputy Chief and Chief Engineer A. I. Bazhenov under the rubric of the Rail Transport-86 Exhibition: "Signaling and Communications"]

[Text] The further incorporation of railroad signaling and communications equipment, the development of the enterprises of the Transsignalsvyazzavody [Transportation Signals and Communications Plants] Trust and the improvement of the technology of device maintenance play an important role in resolving the tasks placed before railroad transport for the 12th Five-Year Plan.

By this time, many individual processes on railroads have been automated, and work in the sphere of automation is continuing in a whole series of transport sectors. The ultimate purpose of this work is the complete automation of shipping-process management. Among the specific issues of this task that are already resolved are the incorporation of automatic line blocking, automatic locomotive signalization, dispatcher control and electrical signal boxes, as well as dispatcher centralization, the automation of hump yards, and signal and radio communications. With relatively little capital investment, the incorporation of these devices permits an increase in the traffic and handling capacity of lines and centers with the simultaneous assurance of train movement safety, a reduction of operating expenditures and the release of workers from manual labor.

The production of railroad signaling and communications articles has increased considerably at the plants of the Signals and Communications Main Administration for outfitting capital-construction facilities in mainline and industrial rail transport and subways and supplying other ministries and departments and the modernization of systems and devices. Over the last five-year plan, commodity output of almost 125 million rubles more than in the 10th Five-Year Plan was produced. This was facilitated by the implementation of measures for intensifying production processes and incorporating progressive technology. Over 5 years, about 300 automated, semi-automated and special machine tools, 25 automated and flow lines, 280 commodity automated and semi-automated units and 45 standard machine tools were incorporated at the plants.

At the modern rate of intensification of rail transport operations, the creation and incorporation of new signaling and communications systems and devices that have expanded functional capabilities with a simultaneous reduction in materials reduction and increase in producibility has great significance. It was precisely toward the resolution of these tasks that the efforts of the research, design and planning organizations, educational institutions and electrical-equipment plants of the Transsignalsvyazzavody Trust were directed. The most efficient systems and instruments are on display at the international Rail Transport-86 Exhibition.

A new small REL-type relay has been created, the manufacture of which requires considerably less scarce and expensive materials and less space for installation in the racks, which leads to a reduction in the spaces and volumes for the installation of devices. Using this relay, a new type of electrical interlocking was developed that has additional functional capabilities along with automatic blocking. This automatic blocking has been adopted as standard and can be employed for single- and multiple-track railroad sections with the possibility of organizing two-way train traffic for every siding track with any type of traction. The reliability of system operation according to device indications is higher than those in existence, while the operating expenditures for maintenance are considerably less.

The new automatic blocking system allows an increase in the reliability of device operation thanks to the incorporation of new instruments to protect the apparatus from climatic effects and switching surges. Questions of industrializing plant manufacture and construction, as well as increasing the productivity of operations, were resolved simultaneously in its development.

A system for the automated split-up of trains created using KTS L1U3-2 microprocessor technology has been placed in experimental operation in the hump yard of the Krasnyy Liman Station of the Donetsk Railroad. The systems provides for the automated control of car-group routings and car braking at all three positions and allows for the degree of track bedding for the set of sorting sidings coordinated with the automated system for the control of sorting stations (ASU SS). The technological separation process is depicted on a color graphics terminal.

In the current five-year plan, the incorporation of the Prognoz integrated data collection, processing and registration system on the technical state of STsB [signals and blocking systems] devices, displayed at the exhibition, will continue. The Prognoz apparatus is intended for raising the efficiency of the elimination of defects, and in certain cases anticipating them, and makes it possible to implement automated dispatcher monitoring of the state of these devices within the limits of signaling and communications division. The system can be utilized on railroad lines equipped with any automatic blocking systems and electrical or dispatcher signal boxes.

The system consists of a central dispatch point (TsPD) and combined communications channels with stationary points (SP), to which in turn are connected signal points (ST). The following types of information are recorded on the TsPD control panel: the presence of defects in the monitoring facilities connected to the SP; changes in the amount of monitoring facilities

with defects for each SP; the disconnection of power feeder lines according to SP; the numbers of the STs with a defect according to the SP selected; the numbers of the STs with disconnected feeder lines according to SP selected; the condition of the sensors for the ST selected; and, the decoded defect for the ST selected.

Any type of information from those enumerated above can be sent to printing or perforated tape. The equipment for monitoring the serviceability of the system devices is part of the system. Power for the apparatus is supplied from the alternating-current network at a voltage of 187 to 242 volts. The circuitry is made from discrete integrated circuits.

Experimental design work is being carried out on a broad front for the creation of automated cab signaling using modern ALS-YeN elements. The tests that have been conducted have demonstrated the possibility of using it in a universal electronic automatic-blocking system supplemented by automatic cab signaling. In the future this automatic cab-signaling system will be coordinated with the automatic braking-control system. The ALS-YeN system exceeds the best world models in its technical and economic indicators.

An aggregate system of dispatcher signaling (ASDTs) is being created that provides for the connection of functional modules of various types to the dispatcher signaling devices and the exchange of information between the control point and the points being controlled with the requisite reliability and in a volume sufficient for the functioning of the automation equipment of dispatcher traffic control, taking into account tracking the movement and displaying the numbers of the trains.

Improving the management of the shipping process is inconceivable without the development of technological communications that ensure the transmission of all types of information--telephone, telegraph, facsimile, television--at all levels from MPS to the facilities managed. Communications at the stage of intensifying production and incorporating various automation systems, including management automated systems, acquires especially great significance. Taking into account the ever increasing role of communications recently, MPS is conducting a purposeful technical policy, the aim of which can be reduced to the following: creating a primary network of railroad communications with a capacity and structure that meet modern requirements; raising the quality and efficiency of existing types of communications and organizing new ones for the purpose of improving the management of the shipping process; creating a data-transmission network that provides for the transmission of discrete information from management facilities through the railroad divisions and administrations to MPS and back for the successful functioning of the ASU [management automated system] subsystems; and, providing all operators and transportation traffic facilities with radio-communications equipment for organizing the management of the shipping process at the lowest level.

The principal technical solution to these tasks is the replacement of air lines with cable. Besides the necessary capacity, cable provides for the organization of high-quality communications channels under conditions of a high level of interference on the electrified sections. The newest scientific

and technical achievements are employed in the area of technological communications. Thus, digital transmission systems with pulse-code modulation find ever greater application in communications networks, which ensure effective interaction with computers. The first experimental mainline fiber-optic line on the Leningrad--Mga section was built in 1985. Fiber-optic communications lines have a number of advantages over traditional cable ones and are finding ever greater application around the world.

The installation and set-up of a quasi-electronic automatic telephone station is being conducted at the Central Communications Station.

The development of the primary network using cables creates the pre-conditions for raising the quality of communications channels. The number of railroads with which telephone contact is automated is increasing continucusly. The ultimate aim of this work is to provide MPS subscribers with the opportunity of establishing contact through automatic dialing with any station in the network. Furthermore, the transition from experiments to the broad incorporation of an efficient communications network for dispatch control is planned. This new type of communications with a number of railroads was introduced in 1985 for the centralized dispatcher apparatus of MPS and is called upon to raise the efficiency of establishing connections. The stations of the Central Dispatcher Administration of MPS and the railroads will be equipped with this type of communications.

A group of standardized communications equipment using microelectronic elements is being developed for the reconstruction of the existing operational-communications networks and the construction of new ones in rail transportation. It is easier to produce, which will make it possible to raise labor productivity and reduce metals consumption and the cost of manufactured articles. The series output of the units of this apparatus will permit the removal of about 70 types of obsolete articles from production. Furthermore, thanks to the complete automation of operation of the new apparatus, operational expenditures for maintenance are decreased considerably and the time spent on preventive and repair operations is reduced by several times.

The Transport radiocommunications system is being developed with the aim of further intensifying the shipping process. It will permit the substitution of obsolete radiocommunications devices, provide for high reliability and will be widely employed in new technological processes in practically all sectors of rail transportation.

The fulfillment of the proposed tasks requires a considerable increase in product output volume by the plants of the Transsignalsvyazzavody Trust with a simultaneous renewal of the product mix. An increase in commodity output of roughly 20 percent is envisaged, wherein the direction of the production of apparatus based on contactless elements using printed circuit boards and integrated circuits and the utilization of computers will be taken.

Further work will be carried out at the Transsignalsvyazzavody Trust plants on increasing technical progress in production. The program for the automation of production processes that has been developed for the plants of the trust envisages the incorporation of machine tools with numerical control, automated

equipment using manipulators, galvanic lines, robot units and flexible automated types of production.

The Signals and Communications Main Administration and railroad communications workers have adopted a policy of resolving the proposed tasks. This will be achieved by way of accelerating the rate of scientific and technical progress in the sector through reducing the time periods for the development of systems and devices for railroad signaling and communications, the incorporation of qualitative changes in the automatic blocking system and the dispatcher and electrical signal system, cab signaling, the automation of hump yard operations, technical diagnostics equipment and other equipment for automating the technological processes of transportation. Many examples of the new equipment are being presented at the booths of the international Rail Transport-86 Exhibition.

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## BALTIC RAILROAD IMPLEMENTS BELORUSSIAN RAILROAD EXPERIMENT

Moscow IZVESTIYA in Russian 5 Sep 86 p 2

[Interview with I. F. Postnikov, deputy chief of the Baltic Railroad, by Ye. Vostrukhov, IZVESTIYA special correspondent, Riga; date not specified.]

[Text] The number of workers on the Baltic Railroad, whose collective shifted to new management methods using the experience of their Belorussian colleagues, decreased quite a bit this year. The mainline is successfully fulfilling its planned quotas, increasing labor productivity and lowering shipping costs with fewer personnel. Our correspondent talked with I. F. Postnikov, deputy chief of the railroad, about the first results of the reorganization.

[Question] Ivan Fedorovich, your collective was among the first to follow the example of the Belorussian railroad workers. Was this an accident? How was the "green light" on the road to mastering the innovation lit? What guarantees were necessary for the successful repetition of the experiment?

[Answer] I would immediately like to point out that we are not repeating the experiment but incorporating work methods that have already been tested in practice. How long will we call normal good work an experiment...? What guarantees success? Our neighbors have successfully shown that it is scientific and technical progress, the tightening up of norms and the improvement of production organization and the transport process management structure -- that is, first of all, it is order in organizing the affair; and second -- responsibility for the task.

I will not conceal the fact that there were quite a few of those who doubted the advisability of using the Belorussian experience on our mainline, among several of our directors and engineer and technical staff members. They said that we had allegedly exhausted many of our reserves earlier than our neighbors and cited the chronic shortage of personnel on the railroad. Indeed, we had not sat with our hands folded in the past; we had searched for every possible way to increase labor productivity. The expansion of the Baltic Railroad during the 11th Five-Year Plan continued at a good rate. Its fixed capital,

for example, had grown 1.2-fold. Dozens of shops and enterprises had been reconstructed, expanded and re-equipped. The all-electric interlocking of switches and signals was expanded widely. Already there were no switchmen on many routes. Dispatchers at central management points directed movement. All told, we managed to "save" 2,500 workers during the five-year plan by introducing new equipment and improving labor organization. We decreased the number of specialists by almost 7,000 people by combining allied trades and expanding service zones. Another example: The majority of train make-up men and engineers on shunting operations are working without helpers....

[Question] It seems that the doubts were not without foundation and that you were indeed tight with respect to reserves? You see, the expansion of service zones, the work of engineers "alone", the combining of trades, technical innovations -- all of these are important components in the experience of the Belorussians. Does this mean that you followed parallel courses?

[Answer] In some respects, of course, yes. However, without the system of measures and without the complicated and scientifically [illegible] approach to the reorganization. We "undid" -- and not unsuccessfully -- the greatest bottlenecks. Our neighbors "shook up" all links in production and management; reviewed lots of hopelessly obsolete instructions, rules and statutes; and approached the efficiency of each transport worker -- from the director to the ordinary worker -- with new yardsticks. We found the boldness to say: "Look at how many 'extra people' we have in transport."

We sent hair-splitting specialists to Minsk and everyone "felt" with their own hands. Then, they made an analysis and calculations -- and not in the management offices but directly in the enterprises, departments and services. Meetings were held in collectives, and they came to the conclusion that our mainline could also work according to the new method. The ministry supported us -- on 1 January, the railroad shifted to the new management methods.

Here are some figures for you to think about: During the first half of the year, labor productivity increased by 11.5 percent. I do not recall such a high rate of increase in it during my many years of work in transportation. Almost five million rubles of the wage fund were saved, and more than seven million rubles of profit above the plan were received. More cargo was transported, but the number of workers decreased somewhat. During past years, you see, we only heard from everywhere: "Give us people, there is no one to work!" We were always racking our brains over how to finally put an end to the personnel problem under the conditions of a shortage of working hands. Now, we are solving a problem to which we are unaccustomed: Who should remain in the collective and who should be released since we are fulfilling even the increased targets with a fewer number of workers.

[Question] Approximately 5,400 people have been released already. Are all of these "failures" who have fallen under the cutback?

[Answer] One should not pose the question that way. The main feature of the new management method consists of the fact that the reorganization on the road

has touched literally everyone. It was necessary to certify tens of thousands of workers-- everyone without exception. At first, it was necessary to review and then organize again their work considering the experience, capabilities and abilities of each one and his attitude toward his duties. We began by studying the people to determine who was doing what. We took 1,700 photographs of the working day in different enterprises and services, certified work positions, and reviewed more than 40,000 work expenditure norms. Everyone saw the same reserves which previously had not been suspected. Of course, wasted time, unjustified norms, the slipshod work of some, and unnecessary positions and specialties were revealed also. The management structure, which had been taking shape for years, had also led to the swelling of staff. We even saw how much we had bred "superfluous people" everywhere.

I want, however, to point out that the freeing of "superfluous people" is in no way deliverance from them. The majority transferred to vacant positions and jobs in our enterprises and services. You see, the personnel stream exists continuously: Some retire, others are called into the army for service, and still others are released at their own wish. Today, those, who fell under the cut-back in connection with the reorganization, are filling their places.

[Question] That means that all 5,400 have remained on the railroad?

[Answer] Of course, not. Many transferred to other branches of the national economy. Here, the people's job placement and information bureau provided a great deal of help to us; our enterprises established close contacts with them. We will expand the experience in cooperation. It was extremely effective. The employees of the bureaus not only provided the railroad workers with complete information about vacancies, they also talked in detail with each one desiring to find a new job and took their personal wishes and experiences into consideration. The people went to work where the need for workers was the most critical. Thus, the reorganization, which we began, is improving the labor resource balance in the enterprises of other branches.

The people stream, however, must be skilfully managed. In no case, should it be allowed to drift. Here, everything depends on the commissions for incorporating the Belorussian experiment in enterprises, on public organizations and on the labor collectives themselves. You see, the absolute majority of workers, who have fallen under the cutback, are not loafers but completely reliable and highly qualified specialists. It is not their fault that they have left their native collective. This process, you will agree, is not a simple one; moral costs are unavoidable here. An individual has perhaps devoted dozens of years to his favorite work, and now it is necessary for him to leave it....

An informal well-wishing conversation with each one, who is leaving the collective, and a thorough unhurried discussion of his candidacy at general meetings and sessions of the trade unions, where all of the work qualities of the individual are considered and weighed, are very important.... We have approved the initiative of enterprises in which they bid farewell not only to veterans but also to those, who are leaving the collective because of objective reorganizational reasons, during a festive situation

with words of gratitude for the labor that has been invested in the enterprise.

[Question] Does all this take place quietly, peacefully and without a hitch?

[Answer] I will share the experience that has already been accumulated, and it shows that if the personnel flow is managed sensibly, if painstaking work is performed with them and if the public is included, it is completely possible to avoid conflicts. One must be able to demonstrate objectivity and high principles. They act this way in the majority of enterprises -- although one cannot avoid "hitches". There are those who are dissatisfied. Three of them were sent to the people's court. And what happened? In all three cases, the actions of the administration and trade unions were recognized to be correct. Thus, our conscience is clear.

[Question] Ivan Fedorovich, are all services and mainlines without exception conducting a cutback in their workers?

[Answer] We came to the conclusion that it is impossible to cut back the staff in our social and everyday services, in the collectives of the pioneer camps, holiday hotels, clubs, libraries, housing management offices, and laundries, that is, in the collectives connected with providing services to our people.

[Question] Will not the cutback in personnel be reflected in rail service and passenger service? Ticket agents have been cutback at several stations -- now, the duty attendant, the receiving and issuing attendant or the freight cashier sell tickets. Will this not lead to the lengthening of the ever familiar lines?

[Answer] Strictly speaking, all of our complex measures and everything which is being done on the railroad to improve production has one goal: to work better, in a more organized manner and more accurately, -- even if with a smaller number. In no case will the interest of the passenger suffer. A friendly conductor will always greet you in each car. We are basically carrying out the cutback in ticket agents at small stations where their duties are completely compatible with other positions. We are taking steps to eliminate lines. They have begun to sell tickets directly in enterprises in Riga, Tallinn and other cities. We are preparing for the introduction of the coupon system on surburban trains. Passengers will not have to lose time at the ticket office. We are making ever wider use of mechanization in the sale of tickets. We are planning to establish costaccounting boards of directors for only passenger services in Riga, Tallinn, Vilnius, and Kaliningrad. This will help to improve the management of passenger traffic and will increase quality of their services.

Thus, both passengers and railroad workers will benefit from the introduction of the new method. The more order we have, the higher will be the service in train stations and on routes. We regard the future with optimism. On 1 July, more than 25,000 Baltic railroad workers were working under the new conditions. Other workers on the mainline are preparing to work in the new way.

Today, no one doubts that we are on the correct path. The reserves, which have been found by our neighbors, are also effectively operating for us. It has been decided to complete the introduction of the new management methods by the end of this year and not by July of next year.

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## 75-TON SIDE-DUMPING RAILCAR IN DEVELOPMENT

Moscow GUDOK in Russian 20 Aug 86 p 1

[Interview with A. Arbuzov, deputy chief designer of the Velikiye Luki Locomotive Repair Works, by O. Kostromina, GUDOK correspondent, at Velikiye Luki; date not specified]

[Text] In one of the shops of the Velikiye Luki Locomotive Repair Works I observed how the sides of an automatic unloading railcar were being welded. There is nothing like them as yet in the Soviet Union. Its capacity is 75 tons. Unloading walls are located along the long lateral sides. They are raised with the help of a pneumatic device, and the cargo empties from the railcar onto specially placed platforms.

Here, I met with A. Arbuzov, the deputy chief designer of the works.

[Question] Anatoliy Yakovlevich, please tell me how this new rolling stock was designed?

[Answer] We had little time. A directive signed by the first deputy minister of the Ministry of Railways arrived in the plant concerning the production of an automatic unloading railcar. Our ministry had addressed this question to the Ministry of Heavy and Transport Machine Building. The machine builders, however, needed five years to realize this idea -- and the builders were expecting the required railcar today. Therefore, they decided to try themselves. Well, the selection fell on us, evidently because there is a railcar construction shop in the enterprise where we have already been producing hopper-batcher types for years.

The national economy needs automatic unloading railcars for shipping dry cargo.

[Question] What difficulties did you encounter during the solution of this task?

[Anwer] The most difficult thing for us was to decide where the new item should be produced. The area was not big enough. There were no machine-tool attachments. We prepared the first batch practically by hand. Otherwise, a minimum of two years would have been required for its production. The experience, which had been acquired during the mastery of the production of hopper cars, helped.

[Question] Besides the fact that this railcar unloads itself, does it have any other advantages in comparison with the ones already known?

[Answer] Of course, there are. The existing rolling stock for transporting dry material is unreliable and is often damaged during operation. As a result, this leads to rather large losses of national economic freight. Judge for yourself. Specifications permit a clearance of 13 millimeters between the roof and the body. In fact, however, larger gaps occur; in addition, there is the shaking during movement.

The automatic unloading railcars practically exclude such losses. You see, the clearance between its roof and body is only two-three millimeters. They also save railroad workers several other unpleasantnesses. For example, salt spilled during shipment onto the main support beam, bogies and braking equipment, causing considerable damage to these units. Dry cargo, which is lost during transport, chokes up the track ballast and it loses its normal water permeability and becomes worthless. The floor in the new railcar is dual pitched. Like wings, it shuts off a steel run.

[Question] Anatoliy Yakovlevich, the latches open with great difficulty in the old railcars. Workers often have to use a sledge hammer. Naturally, they damage the hatch when doing this. Are there cases where a hatch cover is opened and falls at the time of opening?

[Answer] Yes, such cases are known. The new railcar is equipped with a mechanized drive from a pneumatic cylinder. This permits it to be opened easily and simply. One turn of the cock handle -- and the moving part of all four side walls rise up. As you see, this operation has been considerably simplified.

[Question] Do shortfalls still exist in the new item?

[Answer] Unfortunately, it is still necessary to work on it. However, the changes, which we are faced with introducing into the design, are not fundamental ones. The automatic unloader is ready for operation today.

It remains to add that the Velikiye Luki railcar builders have already begun to deliver the new cars to the railroads.

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## CHIEF ON NOVOSIBIRSK METRO CONSTRUCTION DIFFICULTIES

Moscow GUDOK in Russian 26 Aug 86 p 2

[Article by Yu. Lelekov, chief of the Novosibirsk Subway System and Hero of Socialist Labor, under the rubric "Effect of an Invested Ruble": "It Is Operating and Being Built"]

> [Text] Novosibirsk--The Novosibirsk Subway is the country's eleventh. Construction of new underground lines is taking place on a broad basis. It would seem that there should not be any special problems.
>
> Quite a bit of experience has already been acquired; however, life is posing new tasks. They are frequently not so simple to solve.

First, I would like to share that happiness which the people of Novosibirsk experienced when they received this new type of urban transportation. Comment books with the instruction "Write" were posted in prominent spots in the entrance-halls of the stations. The comments are very important to us. They are important because we can better organize our work having listened to the passengers' opinions. Students and academicians, railroad workers and pastry cooks and workers and artists have commented. I will cite only one entry: "There have been many holidays in my long, difficult and happy life; however, there are two which I consider to be most significant -- they are Victory Day and the opening of the subway in my city. A war and labor veteran."

Spoken simply but sincerely. And -- what a comparison! We must be equal to such an evaluation; it binds us to a great deal. Later-- we are planning this -- we will build our own museum: We will indoctrinate the youth, who will come to replace us, in the work traditions of the pioneers of the Siberian underground.

The Novosibirsk subway has five stations, eight kilometers of track and 103,000-115,000 passengers daily-- such is our work load. During the first two weeks after the subway's opening, it withstood a dual load -- it transported up to 230,000 people a day. People came to use as if they were on an excursion, admired the architecture of the stations and got accustomed to it. Now, the field-trip program of pupils from all oblasts -- yes, even neighboring ones also, invariably includes trips on the subway.

These eight kilometers provide a fivefold gain in time for the city businessman who is eternally hurrying -- it takes about an hour to travel by bus or trolley bus between the final stations of the subway and only 10 minutes under the ground. In addition, it is warm and comfortable.

We must orient ourselves toward the best. Against the background of Siberia's severe conditions, where do we see the subway's shortcomings to lie?

The most typical feature of the Siberian subway is the climate one. For the first time in subway building practices, an underground mainline has been laid in a city with a negative average annual temperature. The design is a standard one-- as for Gorkiy, Minsk and Kiev... A long freezing winter and sharp temperature fluctuations -- but the subway is at a shallow depth.

The shallowly placed tunnels and stations, which were constructed using the open-pit method, are considered the most economical for subways. This is even understandable by the non-specialist: the deeper one digs -- the costlier. Who, however, thought whether it would actually be cheaper? The underground was built over the course of five-seven years. And the city economy has been feverish for all seven years. Service lines had to be removed and surface transport lines had to be replanned -- in a number of cases, even including the construction of by-pass roads. What were these direct and indirect losses? Were they always taken into account in the estimates for the subway's construction? It is an open question....

Subways were built simultaneously in several cities and that is why such a public and private competition took place between the subway builders of Minsk, Gorkiy and Novosibirsk. The Siberians surpassed their rivals for the commissioning periods by about a year and a half. However, trains started up in Minsk during the summer, in Gorkiy during the fall, and here during the winter. The handing over of new projects on the eve of the new year is, generally speaking, always subjected to criticism. It is fraught with unexpected consequences; it is not the best time to finish construction projects especially in Siberia.

Today (only now!) has it become clear -- and the specialists have already talked about this -- that the waterproofing norms for subway stations in Siberia should be different. The standard ones have not proven themselves. The work on organizing surface public services and amenities on the territory of the station being built should be carried out without fail during the summer under Siberian conditions. Otherwise, the ground mixes up with the ice and snow. Leaks and settlements appear with the arrival of spring. The main administrations of the Ministry of Railways and the Ministry of Transport Construction must review the construction plans and commissioning schedules for subway lines.

For the first time in world practices, we have built such a unique object as a subway bridge in the form of a pipe box section. The severe Siberian conditions forced us to reject designs employing the usual open-type subway bridge. Theoretically, even according to everyday spokesmen, everything would be fine. But practically? As long as something is new, only operating

experience will provide a final evaluation and the economic advisability for such complicated and expensive engineering structures.

The commissioning of any project in stages and a portion of them even at underway complexes is economically advisable and justified. Here, everything is clear. However, the "selection" of underway complexes must be done with great thought. As a result, it has turned out that all of our stations, except one, have only a single entrance-exit. The opposite entrance has been placed within the limits of the underway complex. This has no effect on the movement safety of the trains and the standards of passenger service. Nevertheless, it is impossible to perform construction work beside an installation which is in operation, without disrupting its esthetics. In addition, such work in progress interferes with organizing public services and amenities on the aboveground territory and does not permit coordination between the operations of the subway and surface transport to be finally regulated.

The opinion, which has been spread that the commissioning of the project by the builders should exactly coincide with the date that the operators begin work -- yes, even at full capacity-- exists. The operating collective of the Novosibirsk subway required approximately 10 days to master the very complicated equipment that is connected with high voltage and the movement safety of trains and passengers. It is simply difficult to imagine a shorter time. But we did not require a greater one. The fact that all equipment has worked accurately for more than half a year without deviating from the norm, that trains are travelling on schedule, that safety is being assured, and that electrical energy is being saved, speaks about the fact that the breaking-in period was the optimum one.

For any city, a subway is a long-awaited and desired construction project. As the Novosibirsk experience has shown, it is possible to turn the patriotic energy of the inhabitants into a business-like energy. There was not a single enterprise or collective in the city which did not take part in some way or other in the building of the subway. A CPSU obkom buro decision established the construction staff which the first secretaries of the party gorkom always headed. They directed the work of the work collectives.

Stage moments were holidays-- the first pile of the first station, the first connection, the first tunnel, the overlap of a bridge, the starting up of traffic. And then -- literally a week after operations began -- the millionth passenger. One of the organizing factors of the holiday was the very widespread publicity. The city dwellers knew everything daily about the subway construction project. This helped both the construction project and the formation of the subway's operating staff very much. We solved the cadre question although it exists everywhere in Siberia. Moreover, we had an opportunity to chose. Highly qualified specialists, especially railroad workers, came to the subway.

The Kharkov subway workers undertook to help us in the process of forming a collective. They trained engineers, broke in the new electric trains and advised our engineers. This helped us quite a bit. A good deed is wonderful and becomes a good memory and something to be imitated. It was proposed

during one party meeting that we, ourselves, prepare for this same help to the collective of the Sverdlovsk subway. Generally speaking, the Novosibirsk subway can become the base for future subways in other cities in Siberia and the Urals. Not only the fact that we are the first in the region but also the opportunity to cooperate with science , commits us to the role of base enterprise.

The first step has already been taken. We have concluded a contract with the Mining Institute of the USSR Academy of Sciences Siberian Department to develop powerful fans for the subway. The ones that are now being used are of a 1930 design. They are heavy, metal-intensive, energy-intensive, and of low efficiency. The units, which the institute is proposing, are threefold-fivefold better in all parameters, and many problems in ventilating subway tunnels and stations are being solved successfully.

A distinctive feature of all subways is construction continuity. The underground tracks grow along with the city. Novosibirsk is no exception. We have planned -- roughly, of course -- three phases and three lines. There are concrete plans also for automating the movement of the trains, for introducing computer equipment, etc. We recently received permission to begin designing the second phase of the subway. This is in prospect for a future five-year plan.

In general, the new and first subway in Siberia is operating and is being built. It has prospects for the future. We already have our experience and our history which will be instructive for those cities where such construction projects are coming.

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## DIRECTOR OUTLINES NEW USSR SHIP REGISTER REGULATIONS

Moscow MORSKOY FLOT in Russian No 8, Aug 86 pp 44-45

[Article by R. Belik, director of the USSR Register: "Special Features of the New Regulations for the USSR Register"]

[Text] The USSR Register is making a technical inspection of maritime ships and their classification on the basis of the rules and norms issued by it, which are obligatory for all organizations and persons engaged in the design, construction, operation and repair or reequipment of maritime ships and in the manufacture of materials and items for shipbuilding and navigation. Fulfilling the requirements of these norm-setting documents should ensure the structural (technical) safety of navigation for the ships under observation, in accordance with their purposes, protecting human life at sea and reliable transshipment of cargoes.

In contrast to the classificational societies of the capitalist and some socialist countries, the USSR Register, being the state technical inspection organ, also supervises fulfillment of the technical requirements, ratified by the Soviet Union, of international conventions and agreements in the sphere of navigation.

The regulations of the USSR Register are international in nature, since they should be used, without hindrance and with economic efficiency, in any countries where ship equipment and materials, as well as ships for the USSR Register Class, are ordered, and where they are repaired and modernized. In consideration of this requirement, the normative documents of the USSR Register are drawn up so as to give the designers, ship builders and material and item manufacturers the freedom to choose a particular design, structural execution, method and technology for manufacture, while ensuring the necessary level of safety and reliability, i.e., the Regulations permit a certain range of possible solutions.

The structure of the Regulations now in effect was formed at the end of the 1960's. The construction principles and the basic requirements set forth on their basis are the result of the collective work of the organs of technical supervision and classification (OTNK) of the socialist countries. In 1963, the CEMA Commission on Transport, guided by the inter-government Agreement on Cooperation in Technical Supervision of Ships and Their Classification (1961), set the task for the socialist countries of creating unified (coordinated) Regulations, especially the Regulations agreed upon for maritime ships.

Part V, "Division Into Sections," is supplemented by Division 5, "Special Requirements for Tankers, Chemical Carriers, Gas Carriers and Supply Ships." These requirements are based on the regulations of the Convention on Avoiding Pollution from Ships (MARPOL-73/78) and the IMO codes on chemical carriers, gas carriers and supply ships.

Part VI, "Fire Prevention," is supplemented and amended on the basis of new IMO documents, including the 1981 Set of Corrections to the Solas-74 Convention. Requirements for the structural fire protection of passenger ships transporting no more than 36 passengers were corrected on this basis. Differentiated requirements for the fire-resistance of bulkheads and decks, depending on the degree of safety of the adjacent facilities, were placed in tabular form, just as for tankers. Requirements for ships adapted for transshipment of dangerous cargoes and for a tanker inert gas system were revised, taking into consideration the possibilities of using gases not only from boiler units, but also those obtained from special generators.

Requirements for fire detection signals were supplemented by regulations on the need to install smoke alarms in the corridors and ladder compartments on certain types of ships. Carbon dioxide fire extinguishers with a mass charge of at least 3 kg and respirators with at least 200 liters air volume were permitted for use. Requirements for curtain fabrics and films were based on the regulations of the IMO A-471 Resolution. Requirements for fire protection of these ships were amended on the basis of the IMO Code adopted for special purpose ships.

In Part VII, "Mechanical Units," requirements for firm dimensions of the shafts and for torsional vibrations were corrected on the basis of the unified IACS requirements. Requirements for gas exhaust systems for tankers, and ventilation systems in Part VIII, "Systems and Pipelines," were made in accordance with the text of the 1981 Set of Corrections to SOLAS-74.

Part IX, "Mechanisms," was substantially changed.

The volume of technical documentation, presented to the USSR Register for approval, on internal combustion engines was made to correspond with the unified requirements of IACS.

Using as a basis an analysis from world statistics of ship emergencies, according to which most of the fires were in the engine rooms, the IACS members adopted resolutions directed toward reducing the danger of fires in engine rooms. Therefore, the requirements for internal combustion engines with a power of over 2250 kW were narrowed down in the section of obligatory installation of monitors for the concentration of oil vapor in the crankcase, as well as for fire barriers in the main pipelines feeding air to the starting valves in the cylinder heads.

Heightened requirements for reserve steering gear power systems were introduced in accordance with the requirements of SOLAS-74 for tankers, chemical carriers and gas carriers. The formula for determining the tractive force at the anchor mechanism sprocket of supply ships is considered as an increased length of

As the result of combined creative work, in a relatively short time, the OTNK Regulations were drawn up and agreed upon--a unified normative base determining a unified level of requirements for shipbuilding and the sectors providing it. This contributes to further development of the integrational processes in specific sectors of industry and transport for the socialist countries.

The OTNK Regulations are the basis on which the national classification organizations work out and issue their national rules. The first such publication was the 1970 USSR Register Regulations. The Regulations published in 1985 is the fifth edition. The list of changes and additions, as compared with the preceding 1981 edition, was presented in a preamble to the Regulations for the Classification and Construction of Maritime Ships.

It is expedient to comment on certain basic changes.

Part II, "Hull," introduces instructions that the requirements of the Regulations for the dimensions of the members be based on the assumption of fulfillment, during the building and operation of the ship, of measures to protect the hull from corrosion, in accordance with the existing standards and other normative documents. If special anti-corrosion protection is used or the estimated operational period is reduced, the USSR Register may allow a reduction in the thickness and dimensions of individual members.

An increase in the size of the members should be specified on ships for constant or occasional transshipment of chemically active cargoes. Precise specifications for strengthening ships for sailing in ice have been introduced in accordance with investigation of the planning and operation. The requirements for the longitudinal strength of ships of limited and mixed (river-sea) navigation have been unified. Ships with restricted navigation, with additional restrictions for heavy seas, are in the latter category.

A new chapter, "Forward Bulk Cargo Ports," and a section, "Supply Vessels," have been introduced.

Requirements for the categories of steel for structures subject to prolonged action of low temperatures have been introduced into the chapter, "Materials," on the basis of the unified requirements of the International Association of Classification Societies [IACS].

Requirements for the anchor assembly, as well as for the location and closure of supply vessel ports, introduced into Part III, "Installations, Equipment and Supply," are based on an analysis of the conditions for their operation and the special features of this architectural type. The increased requirements for the steering gear and provision of evacuation routes take full consideration of the 1981 Set of Corrections for the SOLAS-74 Convention.

Part IV, "Stability," was supplemented with a new section 3.11, "Supply Ships," drawn up on the basis of the IMO code for these ships, as well as a number of proposals worked out by the TsNII [Central Scientific Research Institute] imeni A.N. Krylov. In addition, requirements for ships less than 20 M long, contained earlier under various headings, were combined into a single heading 3.9, "Ships Under 20 M in Length."

anchor chain. The safety of towing vessels has been increased by introducing requirements to equip towing winches with devices releasing the towing cable drum brake when inadmissably large loads occur. The division on requirements for gas turbine engines has been corrected and supplemented on the basis of experience in operating domestic engines.

Part X, "Boilers, Heat-exchanging Apparatus and Containers Under Pressure," has been supplemented with a requirement for boiler-incinerators.

Part XI, "Electrical Equipment," has also been amended. Sections 2.1.3, "Electrical Equipment in Dangerously Explosive Facilities and Spaces," 2.16, "Additional Requirements for Tankers and Combination Ships," and 2.19, "Additional Requirements for the Electrical Equipment of Ships Designed to Ship Means of Transport With Fuel in the Tanks, Railroad and Motor Vehicle Tank Cars for Combustible Liquides," have been completely revised. The classification of categories of dangerously explosive facilities and spaces have been excluded, as not corresponding to international practice. Section 2.2.1, "The Number and Power of Sources of Electrical Energy," in the part on requirements for shaft generators used as the main sources of electric power, has been changed.

In addition, section 2.13, "The Cable Network," has been changed in the subsection concerning unifying the requirements for permissible current loads on various types of cables, and changes have been introduced on permissible drops in voltage on cables connecting the distributing mechanism with the consumers. Requirements in sections 2.14, "Emergency Electrical Units," and 2.8.5, "Electrical Drives of the Steering Mechanisms," have been made to correspond with the 1981 Set of Corrections for SOLAS-74.

Division 3 has been supplemented with section 3.9, "Test Electrical Units With Semiconductor Transformers."

Parts XII, "Refrigeration Units," XIII, "Materials," XIV, "Welding," and XV, "Automation," have been substantially amended and supplemented.

The list of amendments and supplements, as compared with the 1981 edition, for each section of the Regulations on Conventional Equipment for Maritime Ships, the Regulations for Load-lifting Devices of Maritime Ships, and also the Regulations on the Load Mark of Maritime Ships is given at the end of the volume, which includes the regulations enumerated.

Considerable changes have been made in the Regulations on Conventional Equipment of Maritime Ships.

The section, "Life-Saving Devices," has been corrected on the basis of the regulations adopted by IMO, particularly the new text of Part III, "Life-Saving Means and Devices," of SOLAS-74. An assumption of the possibility of providing cargo vessels with a gross capacity of under 500 registered tons, with restricted navigation areas, with life-rafts only, has been introduced. Requirements have been formulated for provision with diving suits and individual

thermal-insulating devices and for their manufacture. The requirements for duty boats have been corrected. The new text of Part III of SOLAS-74 will be fully taken into consideration in Bulletin No 1 for the 1985 regulations.

Amendments pertaining to the supply of signal-navigation lights and their units, adopted at the 12th Session of IMO, have been taken into consideration in the section, "Signalling Devices."

The "Radio Equipment" section includes amendments and supplements stemming from the international documents adopted and from experience in technical inspection. For example, the requirements introduced into the Regulations for Automatic Radar Plotting Devices (ARPA) are based on the requirements of the 1981 Set of Corrections for SOLAS-74. Designations of the types of emanations and extent of the permissible deviations in the frequencies of ships' receivers and transmitters take into consideration the provisions of the 1979 World Administrative Conference on Radio Communications (BAKR-79). Requirements have been introduced for forward radio-telephone stations for internal service communications, in consideration of the provisions of Regulation 6, Part III and Regulation 14--3 of Part IV of the 1983 Set of Corrections for SOLAS-74.

A new Division 10, "Equipment for Radio-Communication Satellite Devices," based on INMARSAT and IMO materials, has been introduced into the Regulations. The appendices 1-7 have been excluded from the Regulations, since the provisions contained in them have been included in the corresponding section of the Handbook of Technical Supervision.

The changes adopted by the International Organization of Labor (MOT) and contained in the Code of Practical Regulations are reflected in the regulations on load-lifting devices. Division 11, "Ship's Hoists," has been revised, and a new Division 12, "Ships' Lifting Platforms," has been introduced. At the same time, on the basis of experience in supervision and proposals for inspections, more precise specifications relative to the range of recorded temperatures and units operating on open decks were introduced.

The regulations on the load mark of maritime ships were supplemented by Division 7, "Load Marks of Floating Drilling Units" (PBU). Requirements for the purposes and application of load marks, depending on the structural features and units are worked out on the basis of the IMO Code for PBU, in consideration of the experience of the USSR Register on technical supervision over floating structures of this type.

The general developmental tendency of the Regulations--a rise in the safety standard of maritime ships and the reliability of supervisory equipment, and supplementation of the requirements for new specialized ships and floating structures with a review of the structure and methodological approach to setting forth the requirements from today's standpoint--is also observed in the 12th Five-Year Plan. The long-term plans for the USSR Register contain the development of requirements for semi-submersible ships, catamarans, crane ships with a large load-lifting capacity, combination ships (for example, suction dredge-oil skimmer, a supply ship-oil skimmer, etc.), and certain

others. A great deal of work is to be done in reviewing the approach to setting norms for certain parameters, which is directly connected with the new intensive methods of operations and technical service for ships, including year-round operation of ships in the Arctic. In addition to the sources, mentioned at the beginning of the article, for improving the Regulations, the USSR Register intends to draw into this work on a wider scale Soviet and foreign planning organizations that have a great deal of experience in using the Regulations of the USSR Register and other classification societies. The contribution of the USSR Register to the matter of accelerating scientific-technical progress in marine transport will depend on how efficient and well-substantiated the changes in the normative base will be, in reflecting the constantly growing requirements of the present day.

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